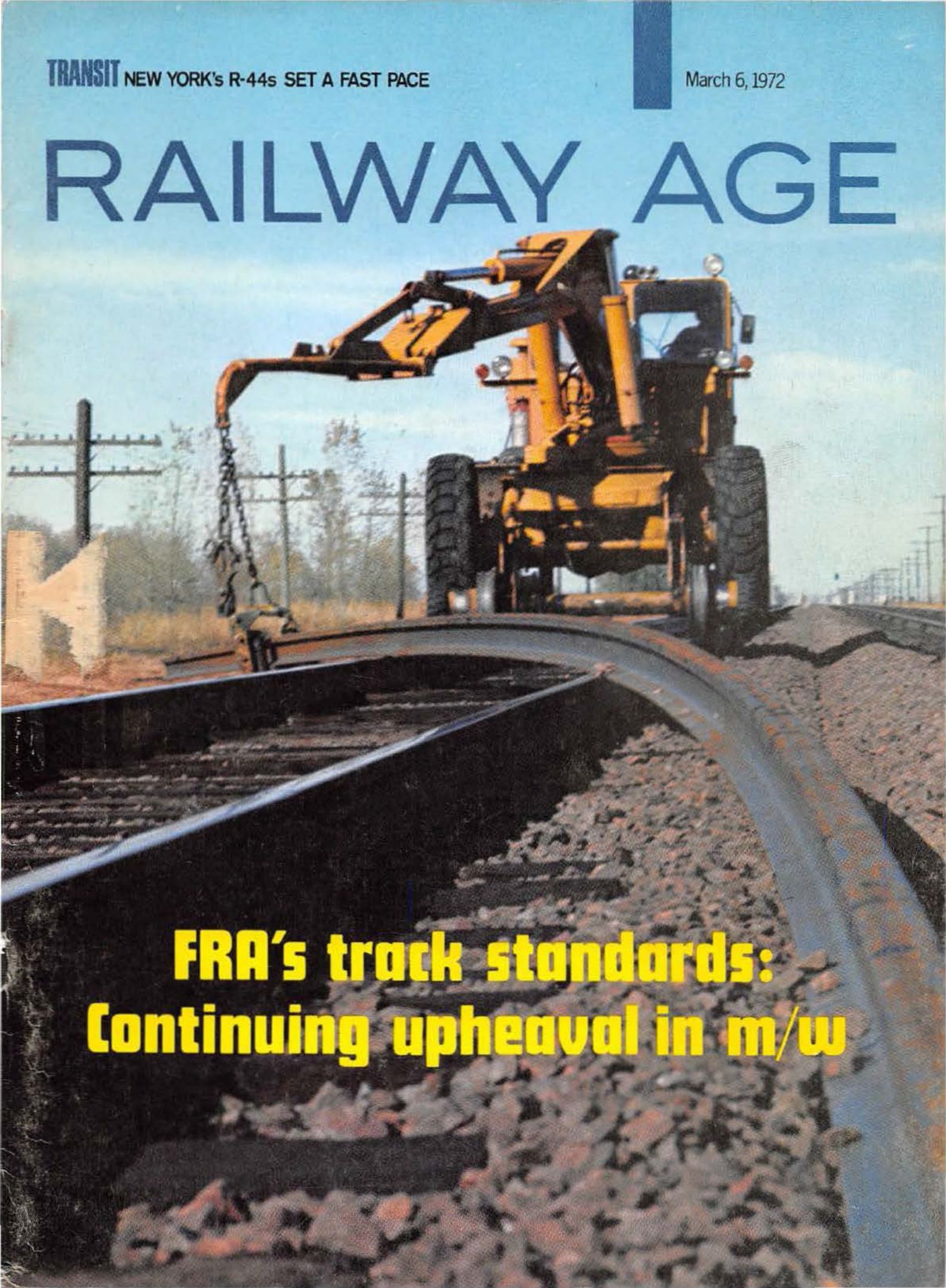
TRANSIT NEW YORK's R-44s SET A FAST PACE

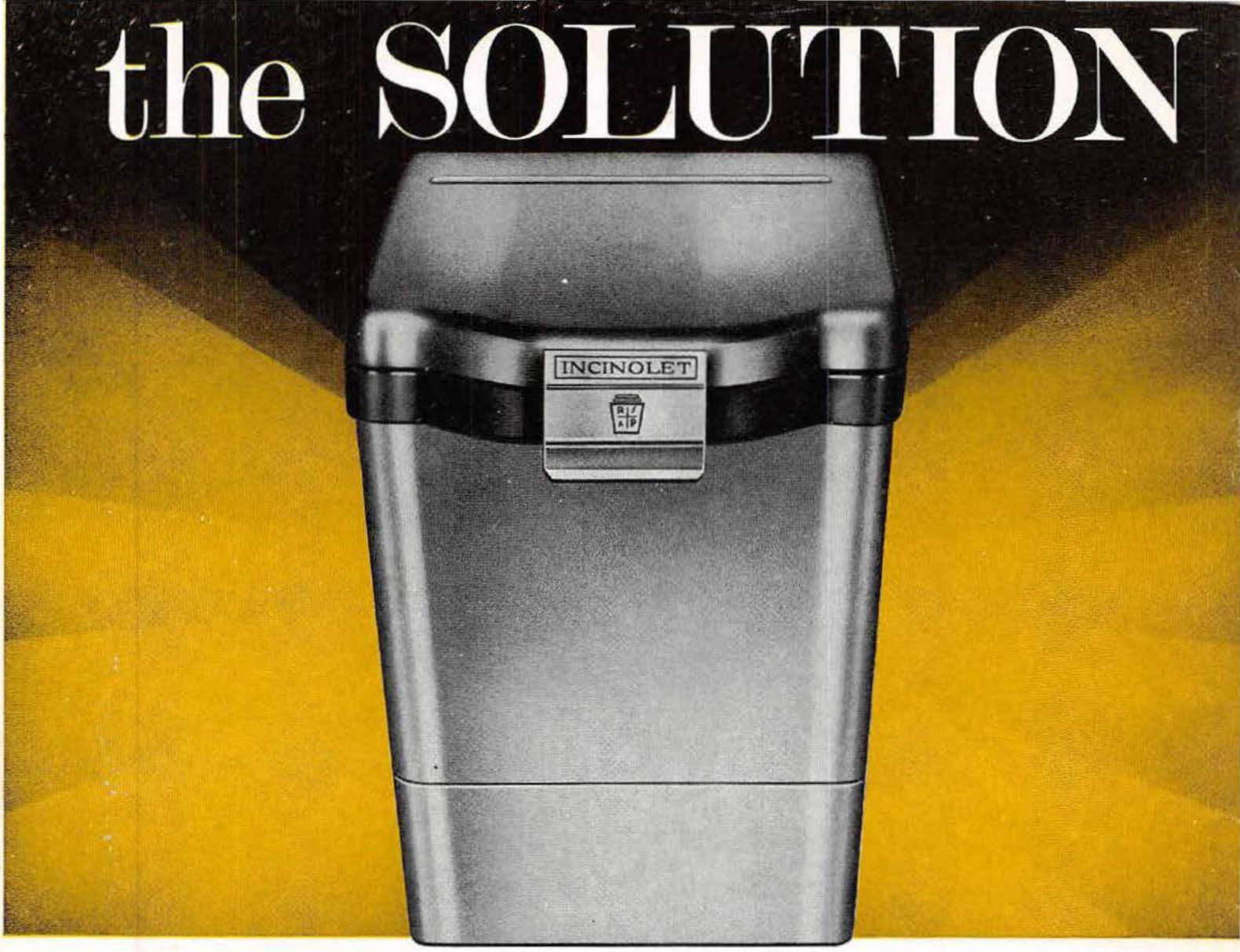
March 6, 1972

RAILWAY AGE

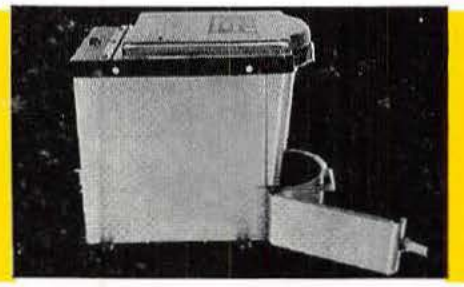


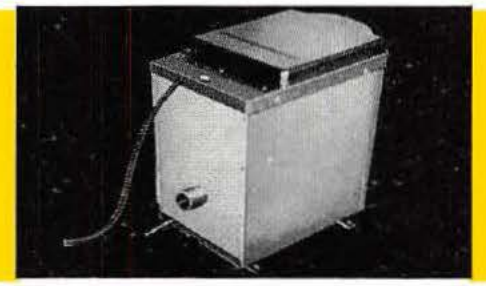
FRA's track standards: Continuing upheaval in m/w

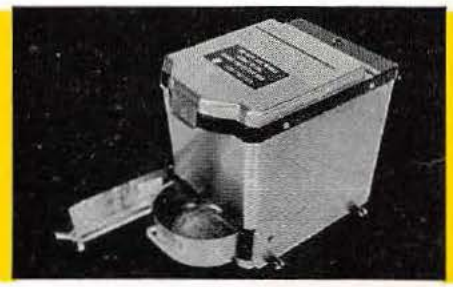
the SOLUTION



to Pollution is Reasonable with MODEL-S







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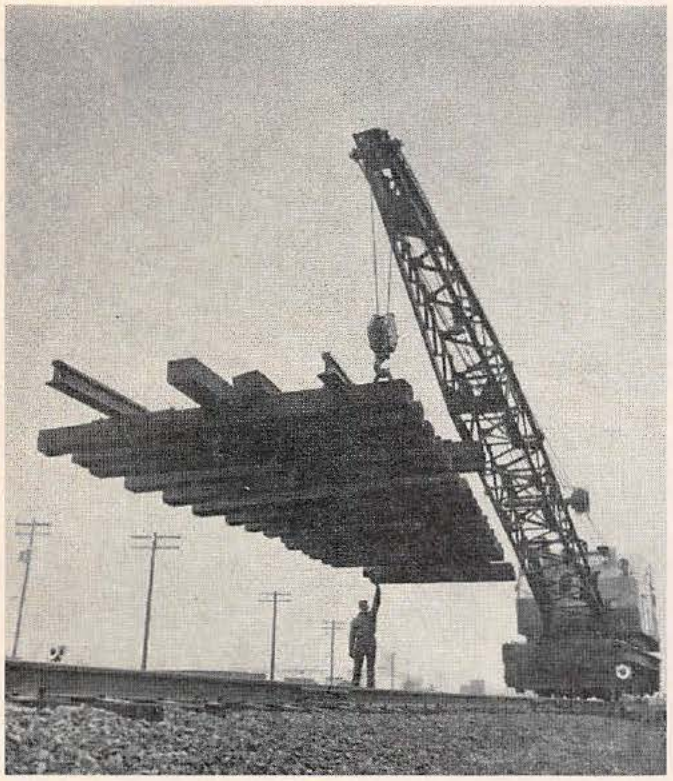
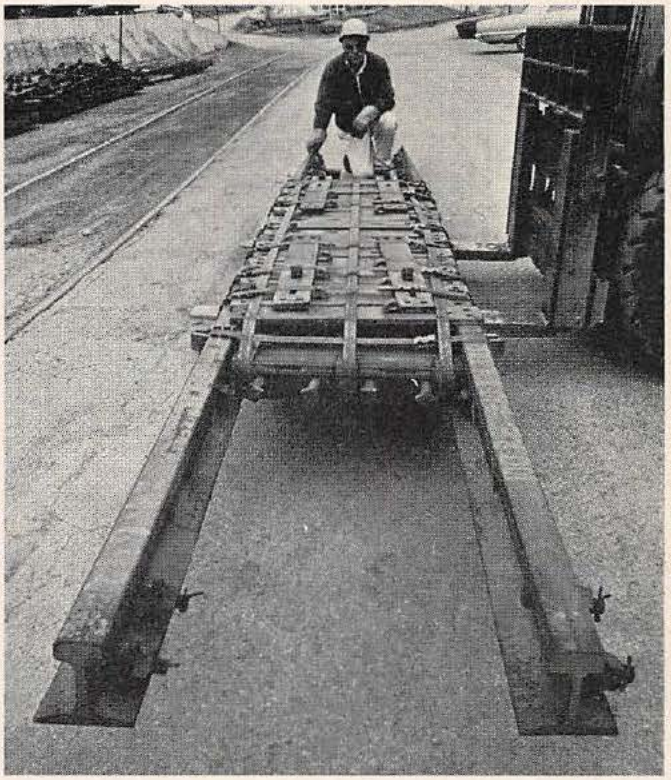
How do you like your switches?





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RAILWAY AGE

March 6, 1972 • Vol. 172 No. 5

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Inside

LUTHER MILLER

TRACK STANDARDS: Chapter 6

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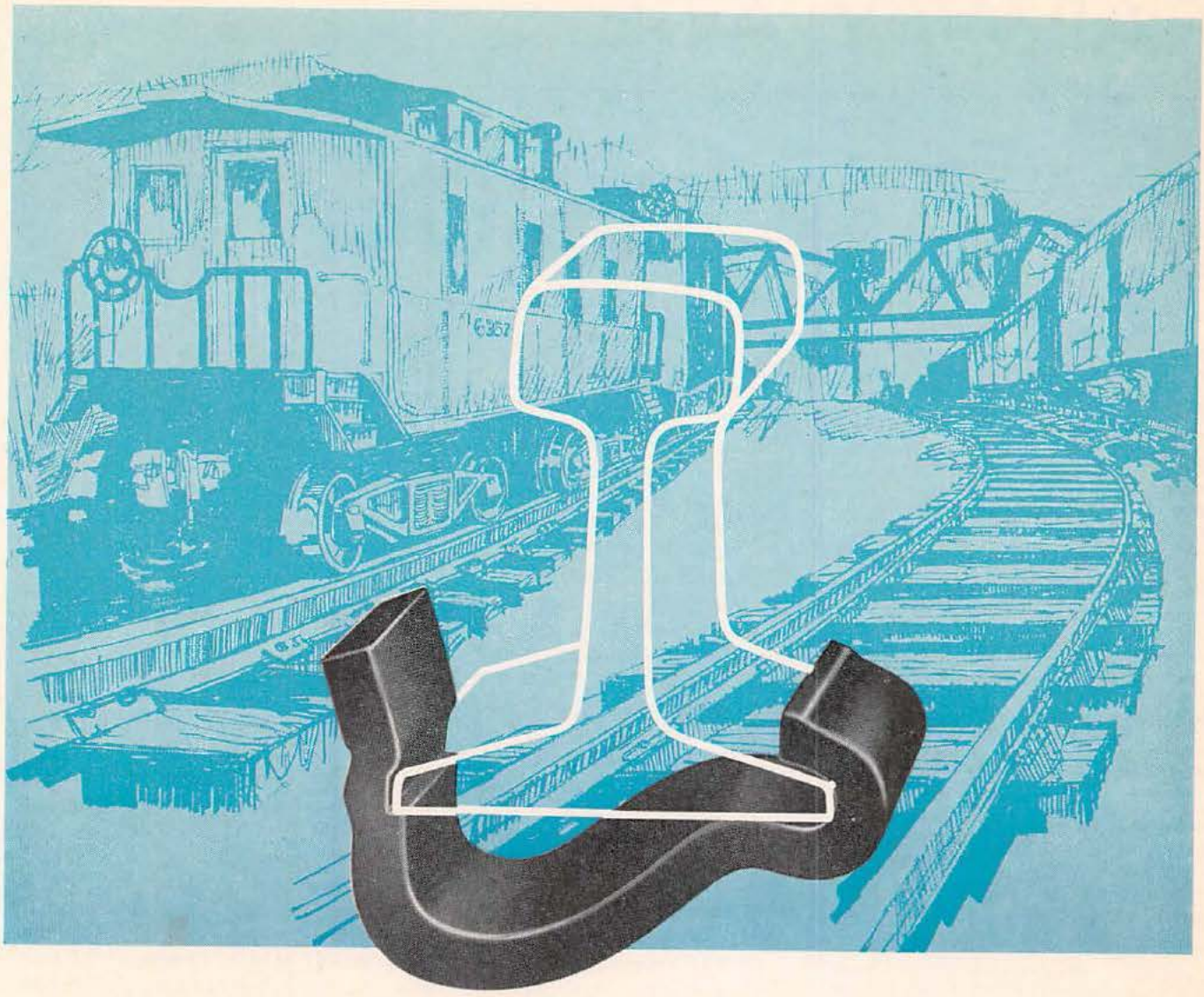
We have, in the U.S., a Federal Department of Transportation. Within DOT, we have an Urban Mass Transportation Administration. Within UMTA, we have the machinery (and the means, supplied by Congress) to spend billions on urban transportation. But we don't build: We talk. And study.

While we talk, and when all else fails commission another study, other cities in other countries are building. And riding. Montreal is an example. Montreal built a rapid transit system in less time than it takes our cities to cut through the red tape in Washington. Montreal's system, though it probably wouldn't have met UMTA's criteria, is working. So well that it's being extended (p. 51). And we continue to talk. And study. Why?



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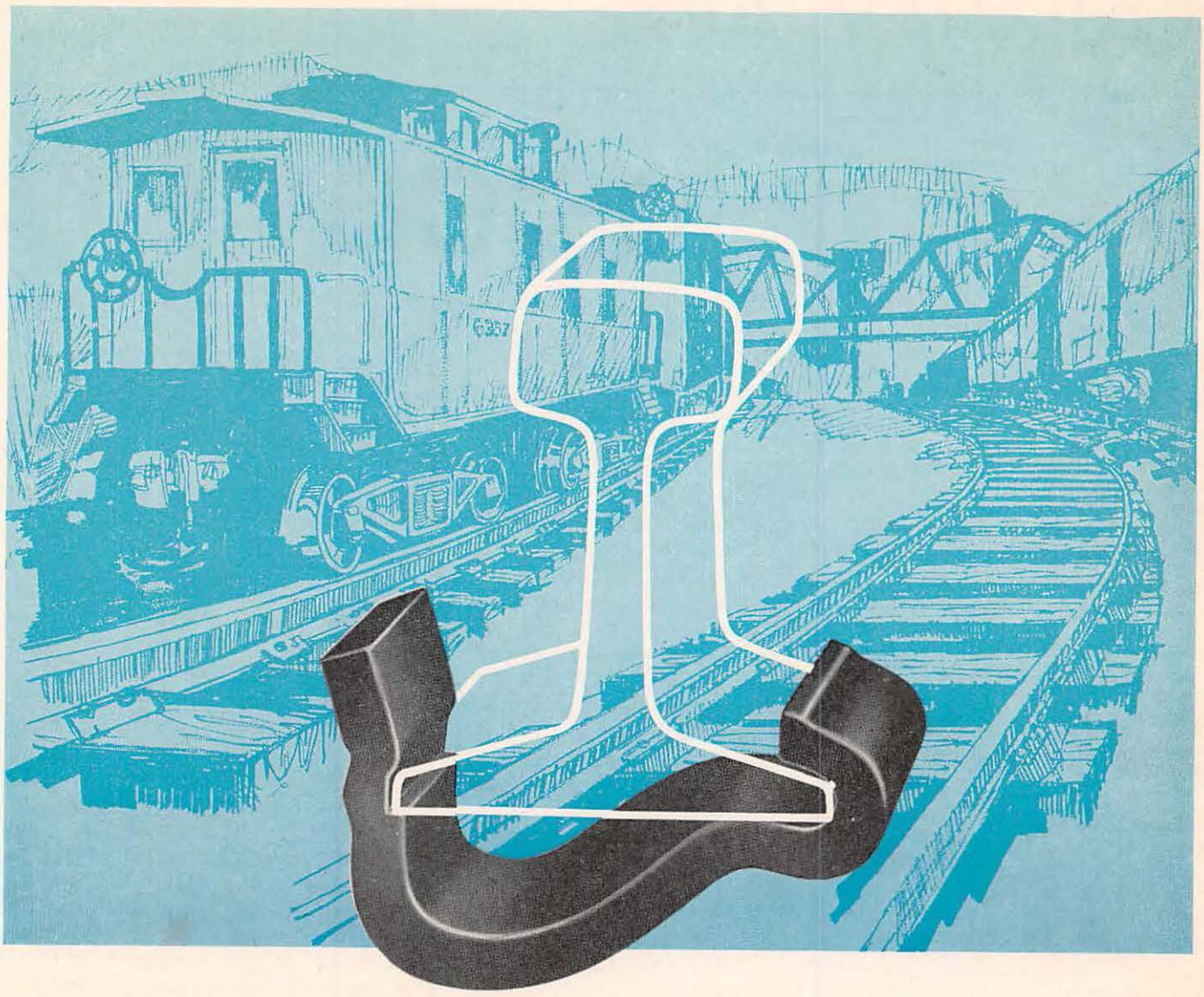

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Short and Significant

TINY UNION, BIG TROUBLE?

March came in like a lion, at least so far as the railroads' dispute with the Sheet Metal Workers' International Association is concerned. As of March 1, the National Mediation Board was preparing to release the case. Neither side may move unilaterally for 30 days after release, which means that trouble could develop early in April. SMWIA, it is estimated, represents about 2,000 employees, with contracts on about half of the nation's Class I carriers.

McGRAW-HILL SEES RISE IN RAIL SPENDING

The McGraw-Hill economics department, which last fall was forecasting that railroads would cut capital spending in 1972, has changed its mind. Following a special survey of the investment plans of all U.S. business, McGraw-Hill says it now looks as if railroads will spend 10% more on capital improvements in '72 than they spent in 1971. This puts the McGraw-Hill forecasts in line with other estimates. Railway Age last fall was forecasting an increase of more than 10%, based on its own survey. A U.S. Department of Commerce/Securities and Exchange Commission survey made public on Jan. 13 estimated that spending for new railroad equipment and plant will amount to $1.88 billion this year, a 12.4% increase over 1971.

FREIGHT-CAR-ORDER TOTAL UP 20%

The total of new freight cars ordered in January 1972 was about 20% higher than in the comparable month a year earlier, although the carbuilders' share was down. The AAR and American Railway Car Institute have reported that 3,780 new cars were ordered in the first month of 1972, compared with 3,152 in January 1971. This year the breakdown was 2,320 in builders' shops and 1,460 in railroad shops. In January 1972, 4,211 new cars were delivered, compared with 4,807 in December 1971. The backlog of cars ordered but undelivered on Feb. 1, 1972 was 21,865, compared with 26,903 a year earlier.

ICC ADOPTS NEW L&D RULES

The ICC on Feb. 24 announced new rules designed "to tighten the processing of loss and damage claims." In its report and order in Ex Parte No. 263, "Rules, Regulations and Practices of Regulated Carriers with Respect to the Processing of Loss and Damage Claims," the Commission said that rules adopted by carriers to restrict their liability on claims for concealed L&D are unlawful. The ICC's new rules, to take effect April 21, direct carriers to (1) acknowledge receipt of each L&D claim; (2) investigate the claim promptly; (3) dispose of the claim within a specified time, or inform the claimant of the status and explain any delay. The new rules also require carriers to maintain records of salvage they obtain from damaged shipments. The ICC also announced it would ask Congress for authority to adjudicate claims whenever a shipper and a carrier cannot reach agreement.

RAILROADS FILE FOR 4.1% RATE HIKE

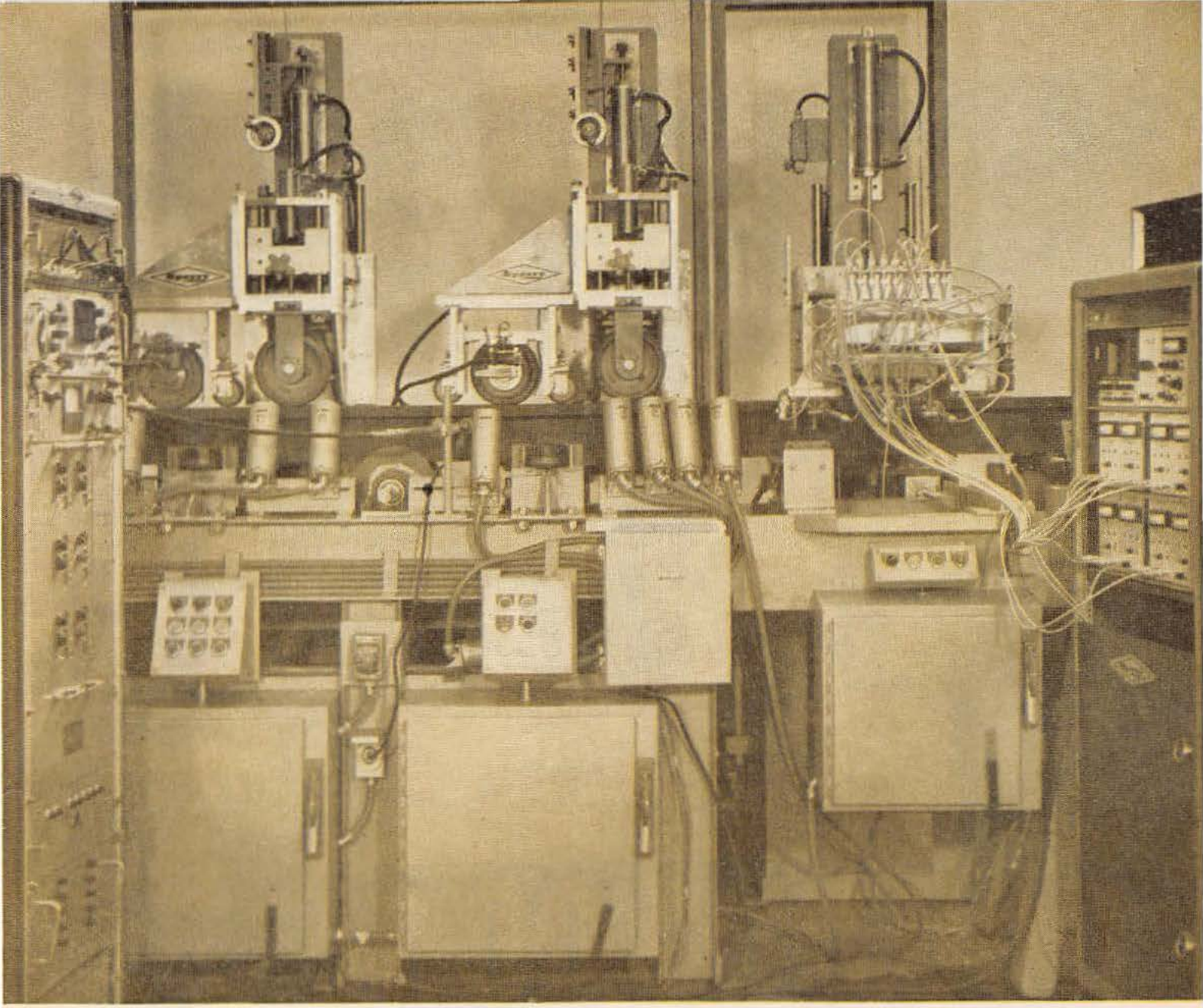
Railroads asked ICC on Feb. 28 for a 4.1% average increase in freight rates to become effective April 1. Expected to generate between $411 million and $501 million in revenues, the increase is to offset a wage hike of $305 million granted last October and another on April 1 of $320 million. Other employee benefits rose $99 million on March 1. The new 4.1% increase, levied on selected commodities, includes the 2.5% temporary surcharge on rates that went into effect Feb. 5 and expires June 5.

SENATE PANEL BACKS OPERATING SUBSIDIES

A Senate Banking and Urban Affairs subcommittee voted Feb. 16 to grant operating subsidies to local transit authorities of up to one-third of a system's annual deficit, and to raise the Federal share of capital grants for rapid transit construction and equipment from two-thirds to 90% which is similar to the Interstate Highway System formula. Under unusual procedure, the measure goes directly to the Senate floor where it may have a strong chance of success. The Administration is strongly opposed, however, and some say has the votes to kill the bill in the House.

ALASKA RAILROAD TO EXPAND

DOT says construction will begin this spring on a 10.2-mile extension of the Federally-owned Alaska Railroad from Fairbanks to the Fairbanks International Airport. The new spur is designed for rail-air freight interchange to meet traffic generated by the oil boom at Alaska's North Slope. FRA estimated the cost of the spur at $800,000 with completion in six months. The Alaska Railroad will pay for the spur out of revenues. DOT was quick to point out that the carrier has not required Federal funds for capital improvements since fiscal year 1956 (except for emergency funds after the 1965 earthquake) nor an operating subsidy since 1939.



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NEWS

ABANDONMENTS: Action on two fronts

In the busiest railroad legislative year that most people can remember, the freight-car bills are getting most of the publicity. But an equally important part of the railroads' "survival kit" is their need for the right to abandon excess, uneconomic trackage. Washington Editor Reid Beddow assesses the situation in this special news report.

No one knows exactly how many of the 206,000 route-miles of railroad in the United States are unprofitable or duplicating and could be abandoned without shipper distress. Estimates vary from 20,000 to 60,000 miles. Measured by traffic, estimates of excess mileage also differ. One authority says railroads roll up 90% of their ton-miles on 10% of their track; another says 80% of the ton-miles could move efficiently over 40% of the track.

At least two carriers have looked hard at the problem and concluded that it contributes significantly to almost every other problem the industry faces: high operating and maintenance costs, inadequate capital and credit, equipment shortages.

Chicago & North Western, after a three-year study, found that it costs $4,000 per mile per year to maintain and operate a branch line—plus applicable mainline and yard expenses. Thus, a 10-mile branch must generate above $40,000 in revenue annually just to break even. In all, C&NW identified 4,300 miles of its 11,000-mile system as low density branch lines producing less than $4,000 per mile per year.

Says C&NW Vice President J. R. Brennan: "From detailed studies of 1,500 of these miles we have determined that C&NW is losing between $1,000 and $2,000 per mile of track from operating these lines. In other words, our company is losing between $4 million and $8 million per year from operating 4,300 miles of branch line trackage."

And the problem doesn't stop there.

C&NW found that if it did not abandon its excess miles, most of which were nearing the end of their useful economic life, it must think about upgrading them to meet accepted standards. And C&NW placed upgrading costs between $35,000 and $45,000 per mile of track. If 4,300 miles were upgraded, the cost would be in the range of $140 million to $180 million.

C&NW decided to cut its system down to 7,000 miles. In so doing, the road estimated that 4,300 abandoned miles would result in a maximum loss of only 3.8% of its annual freight revenues.

C&NW is now methodically filing abandonment notices with the ICC, though it has ruled out a massive filing.

One of the first acts of Penn Central's bankruptcy trustees was to set in motion excess-line studies. In their recent preliminary reorganization report (RA Feb. 28, p. 11), the trustees said

ICC and Congress ponder ways to help rails prune their overgrown plant.

massive abandonments were one of three major conditions to a return to viability. The trustees said 80% of PC's freight moved over 11,000 of its 20,000 route miles. Shippers have all but abandoned one-third of the remaining 9,000 miles, said the trustees—and this one-third should now be abandoned by the railroad. Implicitly recognizing that even unprofitable trackage can contribute to the overall good of a system, the trustees went on to say that "the remaining route miles which still serve a useful purpose can continue to be operated—some of them, hopefully, by a revitalized Penn Central itself, some with help from those interests, public or private, which are prepared to underwrite the losses."

There are other easily established instances of excess trackage. The bankrupt Central of New Jersey runs side by side with the bankrupt Lehigh Valley between New York City and Scranton, Pa. The Erie Lackawanna operates between the same two terminals.

No one doubts that the problem is a serious one. But resolving it is another matter. While railroads point out that you prune a plant to make it grow and to make it healthy, there are many interests—farmers, shippers, communities—who fight any pruning when it takes place in their territory.

Right now there is action on two fronts to resolve the impasse: within the Interstate Commerce Commission, which is now trying to speed up its abandonment procedures; and in Congress, where the introduction of fast-abandonment legislation may well have prodded the ICC into action.

In the past, railroads have blamed the ICC for ponderous slowness in handling abandonment applications. A standard estimate for the time frame for a proceeding with public hearing is 18 months. The wait can be longer.

Everyone has his favorite horror story.

On March 30, 1970, Soo Line petitioned ICC to abandon 42 miles of line between Veblen and Grenville, S.D. In 1969, the line's revenues totaled $63,665; maintenance alone cost $139,657. And Soo Line was faced with another cost: $200,000 to replace rails, ties and ballast and for bridge repair. It took ICC 10 months to say yes.

And there was the case of the New Haven. In 1960, the ICC recommended that this bankrupt road drastically reduce its plant since one-third of the mileage generated 80% of the freight revenue. After filing abandonment applications, the New Haven trustees experienced delays of up to three years in obtaining certificates for short segments. By 1968, when the road was absorbed into Penn Central, the trustees had been able to jettison only 235 miles. The ICC itself had suggested the abandonment of 1,200 miles.

For its part, the ICC has blamed railroads for not submitting applications. ICC Chairman George C. Stafford has

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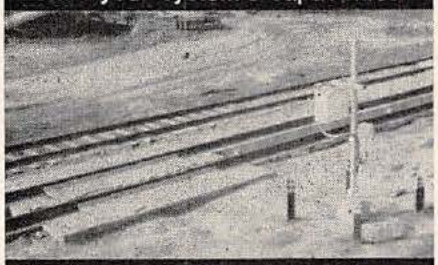

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noted that in 1969 and 1970 the Commission granted certificates for abandonment of 3,068.6 miles while denying applications for only 105.4 miles.

Nonetheless, the ICC, under pressure from many quarters, moved early in February to streamline its procedures. Under these procedures (RA, Feb. 14, p.8), railroads would have had three ways to obtain ICC abandonment certificates. The first was really the old long-form method for use when considerable public protest is foreseen. The second was a new "short-form" method for use when negligible public opposition is anticipated.

A third, a modified long form, invoked the "34-car rule" method. Under it, the ICC would sanction an abandonment if a railroad demonstrated that 34 or fewer carloads per mile per year moved over the line. This is a *prima facie* case for abandonment, and the burden of proof was thereby shifted onto protestants who had to show compelling evidence that the service was needed.

But before the procedures could become effective, they were stayed for reconsideration on petition of the Congress of Railway Unions. Then the CRU went into Federal District Court and obtained an injunction against the new rules, in company with the Commonwealth of Pennsylvania and the Pennsylvania Public Utilities Commission. CRU contends the new procedures were issued without notice or hearing as required by the Administrative Procedures Act and anyway exceed ICC's power. The litigation could go on for a long time.

While Congress, for political reasons, would rather see the problem resolved by the ICC, it nonetheless is considering two bills which would accomplish the same basic goal.

The Surface Transportation Act (S. 2362) would (1) allow railroads to abandon uneconomic track on 45 days' notice to ICC and governors of involved states; (2) require ICC to approve abandonment at the end of 45 days if no investigation is ordered, either on shipper complaint or ICC initiative; (3) allow ICC to postpone an abandonment for six months if an investigation is instituted; (4) require ICC to grant a certificate of abandonment if investigation shows revenues from service over the line are insufficient to cover the relative variable costs of handling traffic, costs to include capital and maintenance expense.

A second proposal is that of the Administration contained in S. 2842, the Transportation Regulatory Modernization Act. It provides that railroads may abandon any line on 30-days' notice to the ICC; if the abandonment is protested, the ICC has six months to investigate. The ICC must approve the abandonment unless it finds the line (a) has generated 1 million ton miles of traffic per mile over the last 12 months and (b) that revenues from the line have been enough to cover variable costs for the past 12 months.

The bill provides that even if the ICC finds the abandonment justified under the above criteria, but that users have no transportation alternatives, it may retain jurisdiction for a further six months.

There is a division of opinion as to whether either of the two major abandonment proposals now before Congress has a fighting chance in this election year. But proponents point to hopeful signs.

For one thing, the National Industrial Traffic League has indicated support of the Administration's proposal, though with substantial modifications. And while farmers are sensitive to any program of massive abandonments, real or rumored (the ICC's announcement of its new procedures set off a fly-in of 90 farmers who descended on Washington in a chartered jet), they are not entirely unreasonable.

Abandonment legislation faces tough going in Congress—but there is hope.

Donald E. Graham, general counsel of the National Council of Farmer Cooperatives, has said:

"You know, farmers are no dummies and with the economy today they have to be pretty smart even to stay alive, but they realize that if a railroad has to go 200 miles up some branch of secondary line and the track is so poor that they cannot even give them a 'Big John' car and they have to use small box cars if and when available . . . they will concede that we have to abandon these local elevators and have these farm distribution centers so we can take advantage of multiple car rates and what-not." The biggest problem, said Graham, is "to get railroad people to tell us where rail service will be five years from now . . ."

Railroad people are working very hard on that problem right now—i.e., where they want to be maintaining lines five or 10 years from now. But it will still require an act of Congress, or an action of the ICC—or a combination—before they can rationalize their plant.

Track-aid bill proposed by Haswell

Ready for introduction in Congress, as soon as sponsors can be found, is the proposed "Interstate Railroad Act of 1972," the work mainly of the National Association of Railroad Passengers and its energetic chairman, Anthony Haswell.

The bill would:

—Direct the Secretary of Transportation to designate a basic interstate railroad system of all lines equipped with two or more main tracks or with automatic block signals (about 82,000 miles).

—Require all main track of this system to meet the Federal Railroad Administration's new track standards, permitting operation of trains at 80 mph.

—Empower DOT to order railroads to enter into trackage-sharing agreements with each other at reasonable rates of compensation.

—Authorize Federal expenditure of $800 million over two years. Half of this would be paid to railroads in reimbursement for state and local property taxes. The remaining $400 million, plus $200 million to be contributed by railroads, would go into a Roadway Rehabilitation Fund, from which DOT could make grants to carriers for track and roadway upgrading.

—Instruct DOT to make a study of Federal acquisition, operation and maintenance of all track and rights of way.

WP Railroad net tops $3.9 million

The Western Pacific Railroad, which lost $13,978,000 in 1970 (including extraordinary charges amounting to $4,624,000), made a dramatic turnaround in 1971. The railroad's '71 net income amounted to $3,907,000, including credit due to tax loss carry forward of $1,953,000.

WP President Alfred E. Perlman attributed the turnaround to "sharply increased efficiency, increased productivity, and improved service to shippers."

Western Pacific Industries, which owns 96% of the railroad, reported 1971 net income of $3,752,000. The railroad is now WPI's only subsidiary. But WPI Chairman Howard A. Newman noted, in a Feb. 24 statement, that $23 million for diversification into non-railroad enterprises was raised through a recent public offering of 1,300,000 units consisting of one share of common stock and one warrant to purchase an additional share.

Watching Washington

SIC TRANSIT TRANSPO

REID BEDDOW

These days, at the Department of Transportation, if you want to see a look of pain cross a junior official's face, mention Transpo '72, the International Transportation Exposition which the U.S. government will sponsor at Dulles International Airport May 27-June 4. In equal parts export fair, showcase for new technology —and unofficial election-year advertisement for the Administration—Transpo is also DOT's greatest venture into show biz, with DOT Secretary John A. Volpe as impresario. The strong secretarial interest (sired by a strong Presidential interest) has put unremitting pressure on DOT officials, and turned DOT sub-chieftains into strong-arm salesmen.

It promises to be a good show, especially strong on aerospace technology from around the world. The original idea, in fact, was to hold an air show, a kind of U.S. reply to similar shows held in alternating years in England and France (RA, Oct. 11, 1971, p. 22). Unfortunately, from DOT's point of view, many surface transportation interests have continued to view Transpo as essentially an airman's preserve, and accordingly they have been slow to sign up.

FREIGHT RAILROADS OUT; TRUCKERS IN

The Association of American Railroads and the Railway Progress Institute, although they at one time considered mounting a joint exhibition, decided against it— partly because of high cost, partly because of the difficulty in moving equipment 20 miles over highway from the nearest railhead. (The American Trucking Associations Foundation *will* exhibit, not being hampered by the latter consideration.) At one time it seemed that a modern diesel locomotive might be entered in the show—but this was discarded when it was found that it would cost $90,000 to dismantle, truck, and reassemble the engine.

However, it now appears that there will be a respectable, if not spectacular, array of rail passenger and transit equipment vying with SSTs and such for the attention of an expected 1,000,000 visitors. FRA will take its leased TurboTrain from the Washington-Parkersburg, W.Va., run, dismantle it, truck it to Dulles, and reassemble it. (One railroad man wonders: "Wouldn't it be better to put the TurboTrain on a three-round-trips-a-day Transpo shuttle between Washington and Cumberland, 146-miles—and give overseas visitors a chance to see U.S. rail technology actually at work—and also a look at some fine American scenery?") FRA will also show a tracked air cushion research vehicle, built by Grumman. The Urban Mass Transportation Administration will have four operational people-mover systems on display: built by Rohr, Ford, Dashaveyor, and TTI. Altogether, there will be about two dozen rail-oriented exhibits, including a mock-up of British Rail's Advanced Passenger Train (APT) and a small working model of Britain's Hovertrain.

There has been talk that the Sixth International Conference on Urban Transportation, which would normally be held in Pittsburgh, will instead be held in connection with Transpo. That was still undecided last week.

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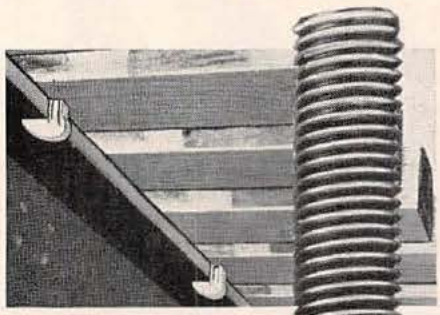

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Amtrak bill gets another rider

Federal auditors may be empowered to inspect the books of railroads as a means of checking on rails' charges to Amtrak, under legislation approved Feb. 22 by the House Commerce Committee.

In approving a bill appropriating $170 million to Amtrak, the House committee accepted an amendment by Rep. John D. Dingell (D-Mich.) that would authorize the General Accounting Office, Congress's fiscal detectives, to inspect railroad books. Ostensibly the amendment is intended to check on whether Amtrak is wisely handling its Federal funds.

But Rep. Dingell told reporters that the amendment generally "would open the books" of railroads, since the completed audit would be forwarded to Congress by the comptroller general, boss of GAO, along with information on railroad operations which could conceivably affect intercity passenger service.

The bill also would:

—Tab $147.5 million of the $170 million for capital improvements.

—Assign $2 million for establishing rail passenger service for Canada and Mexico.

—Specifically give passenger trains priority over freight trains.

—Require Amtrak to submit a report to Congress by March 15, 1973, on what routes it intends to change June 30 of that year, when Amtrak gains authority to make train-offs.

The $170 million appropriation has already been approved by the Senate Surface Transportation Committee, but without the accounting amendment.

PAT tests TV for Skybus operation

A new communication link between a moving vehicle and the wayside has been demonstrated by General Applied Science Laboratories on the Skybus test facility of the Port Authority of Allegheny County at Pittsburgh, Pa. GASL says this is the first time a television picture has been transmitted from a moving transit vehicle to wayside—a development necessary for the application of closed-circuit TV for vehicle security and operating purposes.

The surface-wave communication link has the ability not only to transmit to and from the vehicle, but also to detect its location and velocity, a capability that GASL sees as making possible a "floating block" technology which could increase track capacity. Dr. Manlio Abele, who directs GASL research in microwave communications, notes that there is no physical contact between vehicle and wayside components; the link is insensitive to radio frequency interference and does not require FCC licensing.

The wayside waveguide is mounted in a manner similar to a third rail. The coupling component on the vehicle transmits and receives an extremely wide bandwidth. This could accommodate not only the video transmission, but also voice communication and the control and command signals for a high degree of automation, says GASL. The PAT demonstration involved a camera mounted within the vehicle for surveillance, and TV monitors at one of the Skybus stations.

Penn Central starts a new unit train

Penn Central is now operating a unit train for export soybean meal. The service was inaugurated between Central Soya Co.'s plant at Decatur, Ind., and Canton Elevator at Baltimore, Md.

Paul Funkhouser, PC's senior vice president-sales and marketing, anticipates that the trains will move weekly over the 1,400-mile round trip route. Each train will consist of 100 Central Soya covered hopper cars and will be able to haul more than 8,000 tons of soybean meal.

"This new service enables Central Soya to move a high volume of soybean meal into the export market in a more efficient manner," said Funkhouser.

Previously, he noted, Central Soya shipped export soybean meal to the Canton Elevator in 1,000-ton lots from various processing locations, including Decatur, Ind. The unit train will expedite the transportation and distribution cycle for both the customer and the carrier.

Meanwhile, there was other Penn Central news out of Baltimore last week. The railroad announced completion of a $1.8-million renovation of its Bayview Yard there, increasing the facility's capacity by more than 300 cars.

More than 14 miles of welded rail was used in increasing the number of class tracks to 27 and adding an advance section in which classified cars will be placed just prior to delivery.

Robert F. Lawson, general manager of PC's Eastern Region, said the improvements "will increase the handling capacity of Bayview Yard to more than 3,600 cars per day and allow us to maintain a constant flow of cars through the yard."

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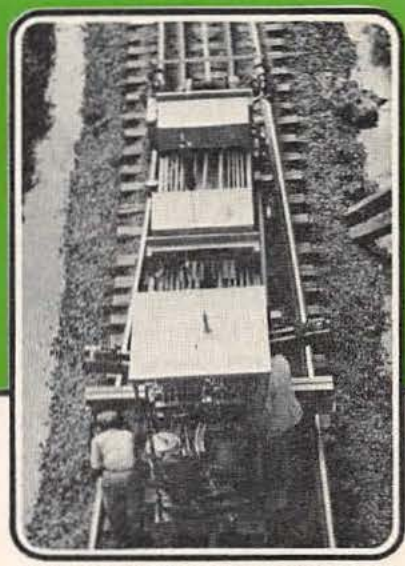

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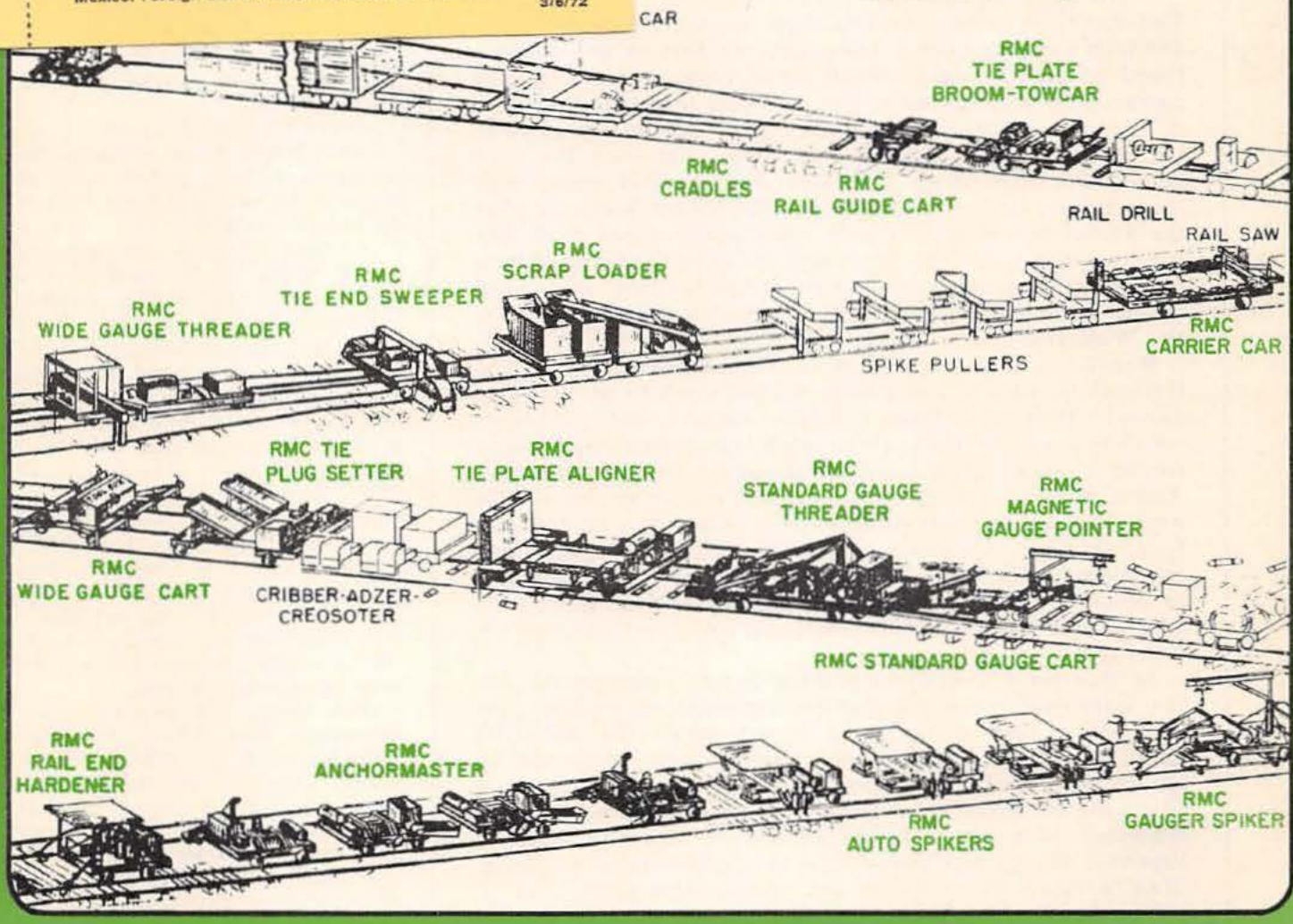

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Lines on Labor

GUS WELTY

NEW KINDS OF "DEMANDS" . . .

Somewhere, sometimes, you have to draw the line. And it's not too hard to visualize a management negotiator, fed up with what has been going on, making this declaration: "OK, we'll give you automatic annual wage adjustments. But you'll have to agree to long-term contracts with common expiration dates. And you'll have to agree not to strike while we're still talking. And you'll have to go along with us in working out some way to settle disputes without a strike or a lockout or anything that interrupts the operations of this industry."

Tough talk? Sure. No self-respecting union leader would sit still for that sort of thing, right? Wrong. Those "demands" aren't management's. In essence, they represent the kind of management/labor world that one group of transportation unions—a half-dozen AFL-CIO maritime unions—would like to create in their industry. They represent, most observers might agree, the kind of thoughtful and positive outlook that could bring management and labor into a true partnership aimed at reviving a sick-business—U.S.-flag shipping.

. . . OFFER HOPE TO ONE AILING INDUSTRY

The maritime unions—in this case, those representing East and Gulf Coast and Great Lakes dock workers as well as shipboard employees—have several broad goals in mind. One, of course, is to protect employment. Another is to build business. A third is to enlist government's help in preserving, protecting and promoting U.S.-flag operations. Not even the most hard-nosed, rock-ribbed management-type could argue with those basics. And, while there may be hidden hooks in what the unions are saying, nobody could really argue that they have not taken a step—hopefully, an important first step—toward bringing order in an environment too long stereotyped in the mold of gangsters, thieves, Marlon Brando and "On the Waterfront."

Meantime, what is going on in the railroad industry? Unfortunately, what is going on seems too much to be "business as usal." Overtly, at least, rail labor seems to have its sights set clearly on the first of the maritime unions' goals—protection of employment—and hardly at all on the other two. And it just won't work—not now, and not under conceivable long-range future circumstances that might run all the way from universal prosperity to one big USofARR. Under free enterprise or under government control or under anything in between, there simply is no success-potential in any kind of union strategy that concentrates on job-preservation alone. No way.

At this point, nobody is rushing out to order medals for the longshoremen or the marine engineers or anybody else involved in that goal-oriented report which the AFL-CIO Executive Council accepted upon presentation by International Longshoreman's Association President Thomas W. Gleason. Given the management/labor history of the maritime industry, it's much safer—and a far better bet—to wait and see what happens. But the maritime unions have gotten great publicity. They're being given credit for trying—the same kind of public credit which, from time to time, has gone to various airline unions and to the Teamsters. And occasionally—but not nearly often enough—to the brotherhoods.

Chicago solution: Son of CMATS

A "Son of CMATS" plan may be emerging as a likely solution to the somewhat muddled mass-transportation issue in the Chicago area. CMATS—Chicago Metropolitan Area Transportation System—is the controversial proposal for a single, unified agency to plan and control all mass transportation in Chicago and the six-county surrounding area. This plan, backed by the area's six major commuter railroads as well as by a number of suburban governments, is contained in the Illinois legislature's House Bill 2136 for which hearings are scheduled to begin in May.

Chicago and the Chicago Transit Authority are opposed to the CMATS plan. Political control and financing are the key issues. To avoid what many feel will be a complete impasse, a somewhat watered-down version of CMATS —called CMATS II, or Son of CMATS—is now developing. As explained by Henry Davenport, Illinois Central vice president and one of 15 panelists assembled recently by the West Suburbs Mass Transit Seminar to discuss transit needs, the new plan calls for three governing bodies, not one. They would be:

—The CTA Board as it exists.

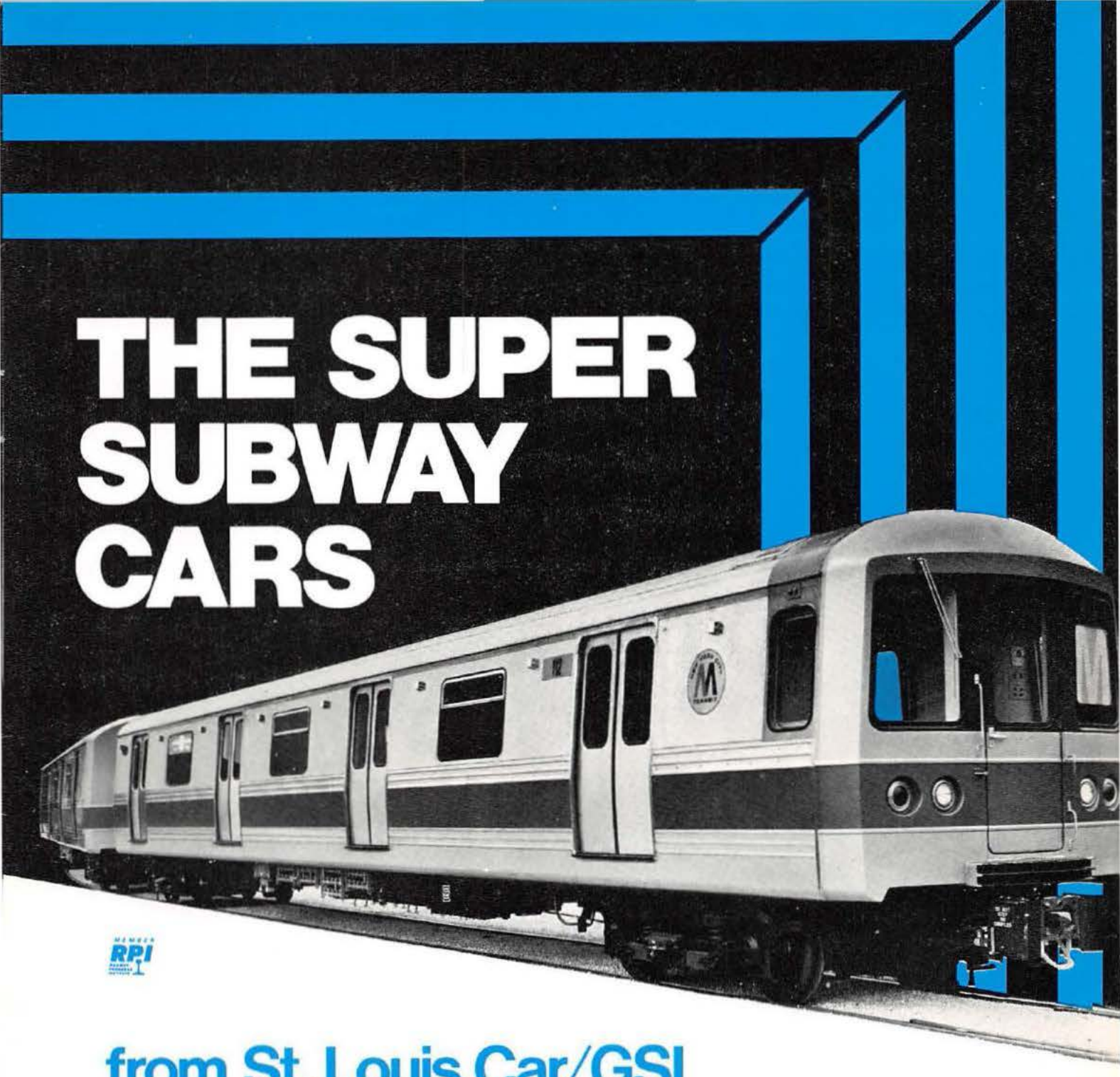
—A CMATS Board to govern development, planning and financing of transit in the metropolitan area outside the Chicago city limits.

—A third body, largely of a planning nature, which would coordinate the efforts of CTA and CMATS, and settle any differences.

Chicago's six commuter railroads regard a regional mass-transportation system for the six Illinois counties as well as two counties in northwestern Indiana as absolutely essential. Last year, five of the six roads had a collective loss of $5.8 million on commuter operations. Only the Chicago & North Western, the leading proponent of CMATS, showed a profit—$1.7 million, down from the previous year's $1.9 million. The outlook for this year, said Davenport, is less than bright, and public subsidies are needed to assure healthy commuter operations in the area.

Other Illinois roads involved are the Milwaukee, Rock Island, Burlington Northern, and Illinois Central. The interstate character of the proposed agency is necessary because of the commuter operations of the Chicago South Shore & South Bend which extends into nearby northern Indiana. A year ago CSS&SB sought passage of an Indiana Urban Mass Transportation Act which would subsidize public and private passenger carriers.

THE SUPER SUBWAY CARS



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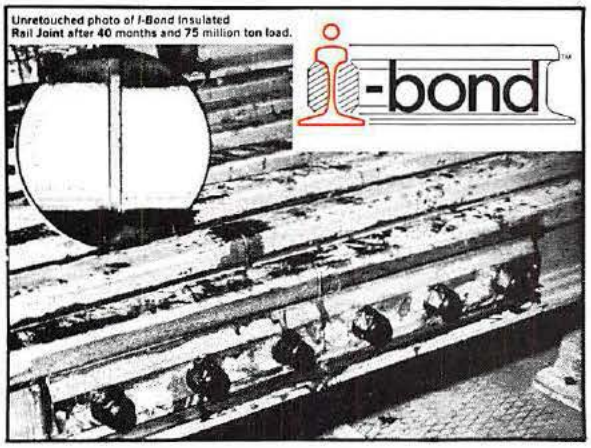

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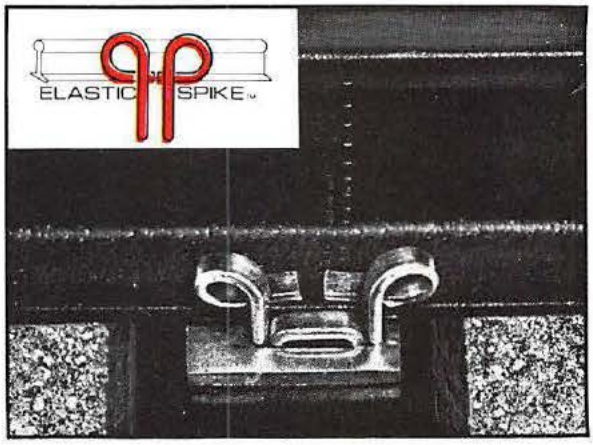

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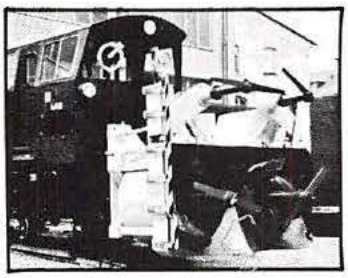

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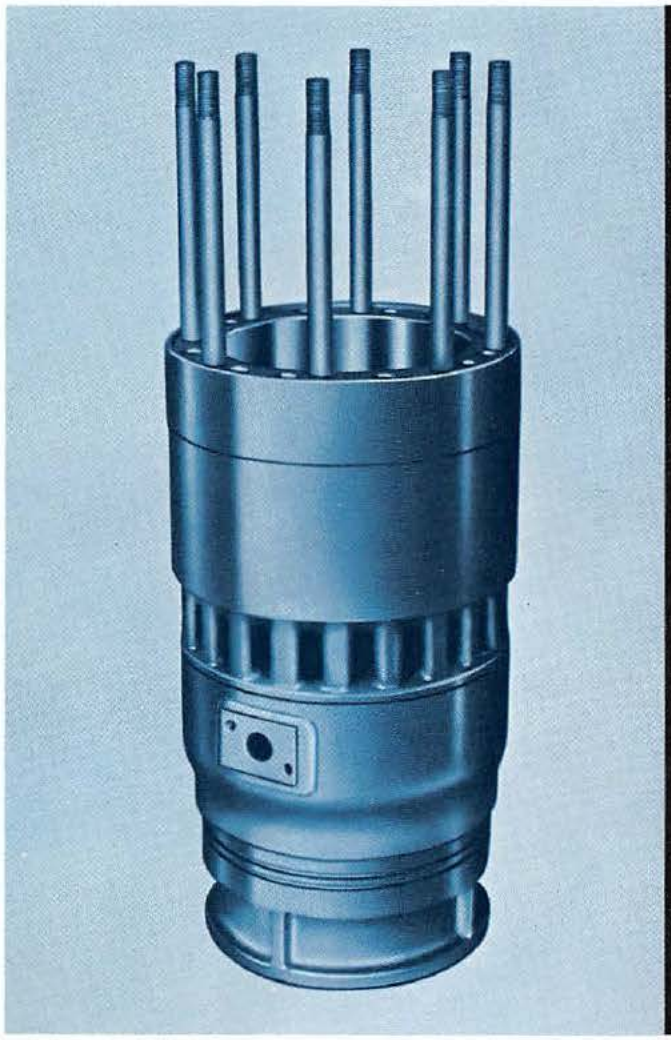

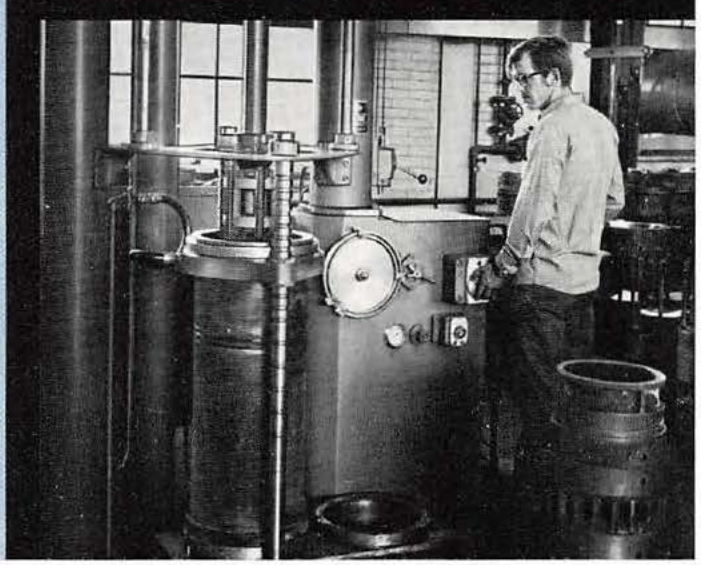

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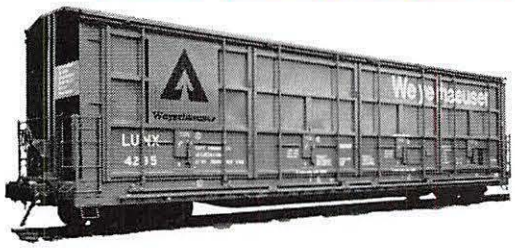

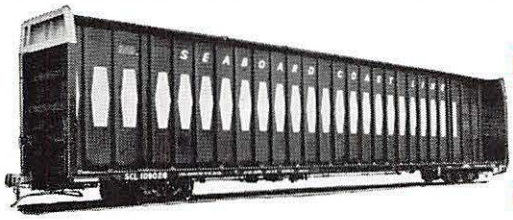

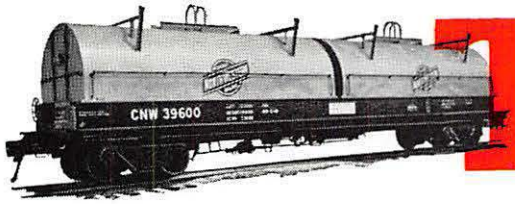

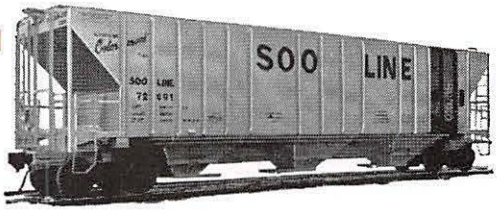

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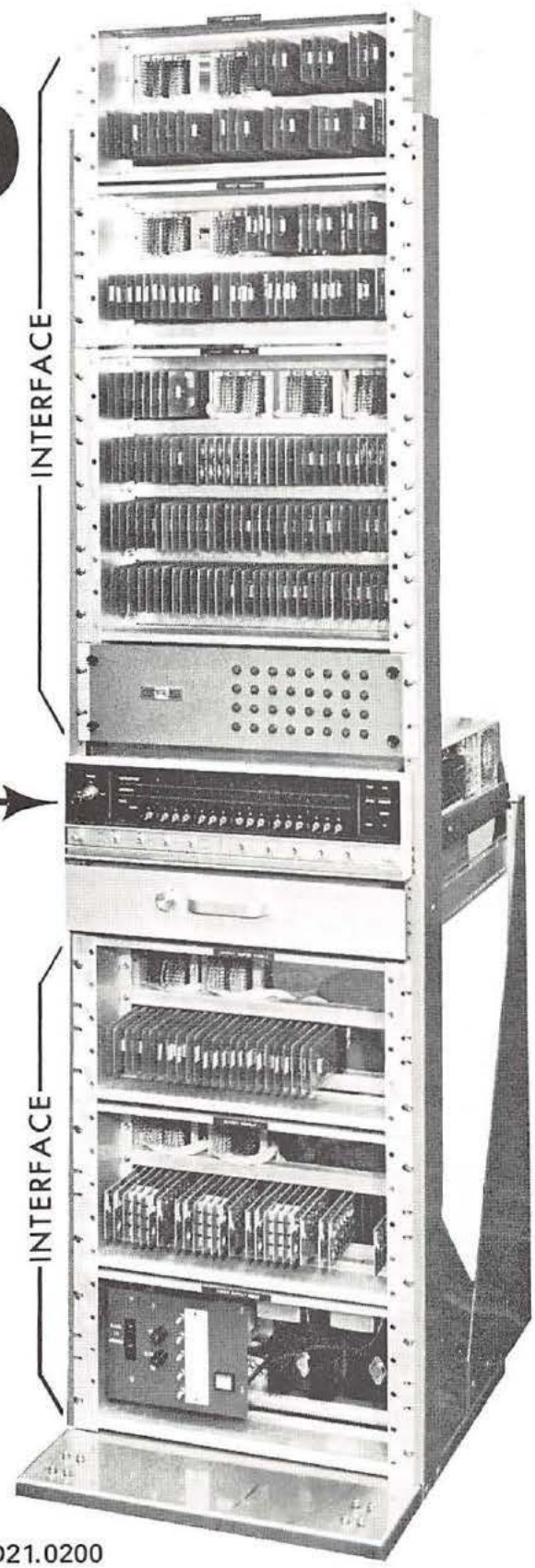

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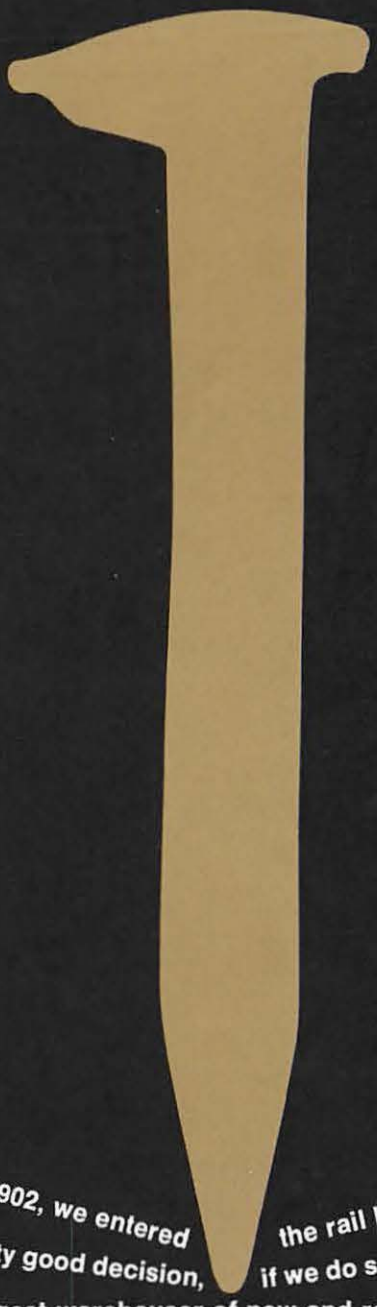

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AREA/AAR Engineering program highlights

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Place—Sherman House, Chicago

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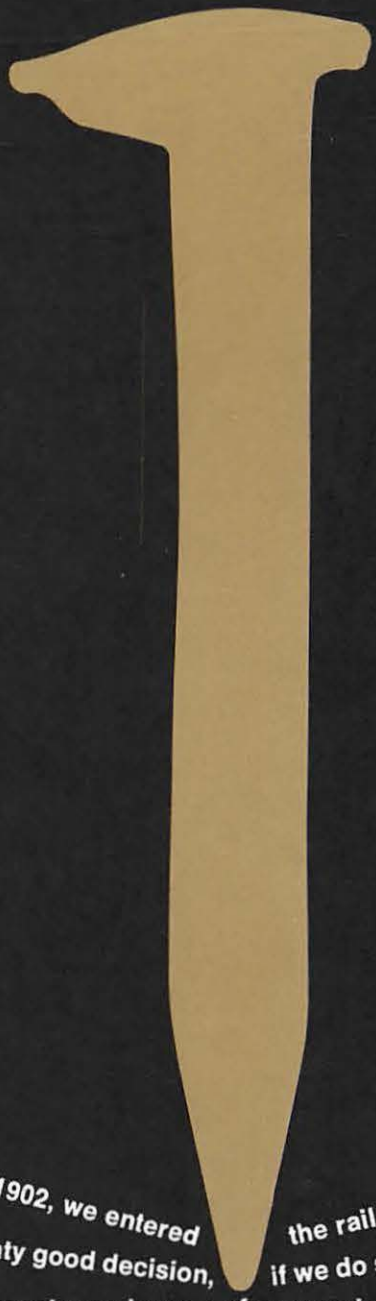

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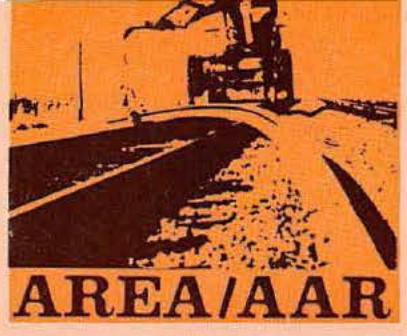

ON TAP FOR TRACK MEN:
A hot agenda, a big show

If you want to know how deeply government is becoming involved in the basic business of building and maintaining railroad plant, you need look no further than the program for the March 7-9 meetings of the American Railway Engineering Association and the AAR Engineering Division. In three-morning-and-an-afternoon sessions, no fewer than 10 government representatives—nine Federal, one state—are scheduled to appear at the engineers' sessions. They may draw quite a crowd: It's estimated that total railroad and supplier registration for the meetings and an exhibit will reach, and maybe top, the 3,000 mark.

The leadoff speaker will be Federal Railroad Administrator John W. Ingram. Coming on later will be other FRA people from various divisions, plus representatives from the Federal Highway Administration, DOT's Transportation Systems Center and the California PUC.

Much of the immediate concern of engineering personnel will probably surface in a panel discussion set for the afternoon of Tuesday, March 7—a panel discussion on the FRA's track standards (see following story) which will bring together Federal, state and railroad views as expressed by three government spokesmen and by both trunk-line and short-line railroad officers.

● **For the future . . .** There will also be a certain amount of futuristic comment. Also on the program are discussions of DOT's Transportation Systems Center, of DOT/FRA LIMRV track construction and track car inspection results, and of the FRA/Santa Fe test-track project in Kansas.

One of the hot legislative proposals may be on the program, to an extent at least. That's the proposal, now before Congress, which would require states to spend a minimum of 5% of Federal highway aid funds for grade-crossing protection. The AREA/AAR program

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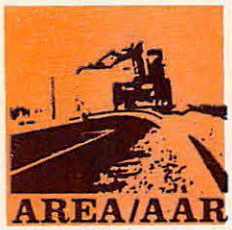


TRACK STANDARDS: FRA tells the

By MERWIN H. DICK, Engineering Editor

A railroad task force is now working up counter proposals—in the hope that a cards-on-the-table dialogue can keep this increasingly inflammatory issue from winding up in the courts.

There's only one word for it: "Upheaval."

That's the state into which the railway maintenance-of-way field has been plunged by the FRA Track Safety Standards.

The condition has existed ever since the standards were published in the Federal Register of October 20, 1971. But if anything, there has been a gradual worsening of the situation as individual railroads have made appraisals of what the standards would mean to them.

Perhaps the feelings of most chief engineers are summed up in the words of the engineering head of a terminal line who said he wishes he could pick up a copy of Railway Age and "read that the effective date of the standards has been extended to Oct., 1976." It was his way of expressing regret that the actual effective date of the standards for existing tracks is Oct. 16, 1972, for all provisions except those pertaining to track geometry and crossties, which become effective Oct. 16, 1973.

● **Is dialogue starting?** Perhaps—just perhaps—he may get his wish. At least some extension of the effective dates is possible, along with modification of some individual features of the standards. It all depends on the outcome of a dialogue that appears to be getting under way between the railroads, acting through the Engineering Division of the AAR, and the Federal Railroad Administration. Sensing that the carriers were vigorously opposed to some of the provisions in the standards, the FRA has signaled to the railroads: "Let's talk." This invitation has been issued informally in comments made by FRA people at meetings and in private conversations.

Face-to-face conversations are a desirable prelude to the initiation of changes in the standards, says John E. Rourke, FRA's director of standards. In such conversations the railroads would say, in effect, "Here are the changes we would like to make." Substantiating material would presumably be included. If the proposed changes are considered to be "in the ball park," the FRA would initiate the rule-making procedure by publishing them in the Federal Register. Comments would be requested from all interested parties. Following a specified period, and if one is requested, a hearing would be held at which further comments would be heard. The docket would then be closed.

The FRA would then review all comments and come to a decision regarding which, if any, of the proposed modifications are acceptable. This decision would be based on the record as made by all interested parties, including the labor unions. The standards as modified would then be published in the Federal Register, and become law.

● **Substantiation necessary.** FRA representatives emphasize that changes in the standards proposed by the railroads must be based on engineering considerations, experience, or similar rationale. The cost to the railroads of implementing the standards, while a factor to be considered, is not a prime factor, they say. Requests for extensions of the effective dates will also be considered in such proceedings, providing factual data are presented indicating that compliance is impossible.

For their part the railroads appear ready to accept the invitation to talk. As a preliminary step to such conversations, Allen L. Sams, chairman of the General Committee of the AAR's Engineering Division, appointed a task force to make a determination of which rules in the FRA standards are not considered necessary from a safety standpoint. Heading up this group is W. J. Jones, engineer maintenance of way and structures of Southern Pacific. Jones is also a member of the General Committee and a director of the American Railway Engineering Association.

Jones' group will be concerned with such provisions in the standards as the requirement that monuments or other permanent markings be maintained at curves indicating maximum and minimum points in the "elevation transition" in tracks carrying trains at speeds of 40 mph or more. Another requirement that will get attention is the provision specifying that there must be two nondefective ties under each joint in the higher classes of track. Neither of these requirements is regarded as being necessary for the sake of safety.

As this issue went to press, preliminary contacts had been made in the effort to initiate an AAR/FRA dialogue. It was hoped that a full-dress working session could be arranged before the AREA convention got under way on March 7.

But suppose the informal approach does not result in revisions of the standards that will meet the requirements of the railroads? What then? In that case the issue could wind up in the courts. A hopeful sign, however, is an apparent desire to come to a meeting of the minds without the need for resorting to judicial procedure. The reasoning, as one man put it, is that it is "better to have engineers talking to engineers than lawyers talking to lawyers." In this extremity—court action—the railroads would have to prove that what the FRA has done is "arbitrary and capricious," and this, it is said, would be difficult.

● **Regulation is repugnant.** Meanwhile, railroad maintenance-of-way departments remain in the grip of the convulsion brought on by the FRA Track Safety Standards. Even if the standards had been acceptable to the railroads in every way, there would still be a convulsion because the idea of government control of track standards is repugnant to railroad people generally and to M/W men in particular. Engineers as

railroads, "Let's talk"

TRYING TO BRIDGE THE GAP

John E. Rourke (right), FRA's director of standards, wants railroads to come forward with recommendations for changes in the track standards. The railroads' Allen E. Sams (left) has set the machinery in motion to produce these recommendations.

a rule are independent by nature and naturally resist losing their freedom of action.

However, getting used to the idea of regulation will involve a mild adjustment compared to that required in actually putting the standards into effect. First, the requirements of the standards in terms of materials, work and money had to be established. An AAR task force figured that the initial cost of the standards as they now stand would come to a staggering $1.630 billion, with the added annual cost amounting to $116.2 million.

The question of where the money would come from, however, is only part of the over-all problem. And the problems of getting the materials and hiring and training manpower might prove insuperable. For example, the rules would require the railroads to procure and insert an estimated 48 million additional crossties by Oct. 16, 1973. This would be an accomplishment that is clearly out of the reach of both the railroads and the tie producers, according to industry sources.

When the effect of the standards on individual railroads is investigated, it is found that wide variations exist. Some of the more affluent railroads profess to be little affected by the standards, although observations indicate that such professions need not necessarily be taken at face value.

● **Surveying the requirements.** The full impact of the standards on each railroad can only be determined by making a field survey. The chief engineer of a terminal line tells about the survey being made on his road: "First," he says, "we must find out in what respects our property does not comply with the standards. Several months will be required to complete the survey. Even more months will be required to decide what must be done to bring the property into compliance and then to determine what and how much material will be needed, what machines it will be necessary to purchase and how many men must be hired and trained. We must then put a cost figure on this and, most important, find the money.

"The additional work required will, of course, be in addition to the regular program. Some serious questions must be faced. For one thing, will the machinery manufacturers be willing to gear up their production for the relatively brief period that will be required to meet this bulge in requirements? Will the tie producers be able to produce the ties in the quantities needed? Also, there will be a surge in labor requirements followed by a recessive period."

Noting that 62% of his road's trackage is main track and 38% yards and sidings, this officer points out that, since the yards and sidings are slow-speed tracks where derailments don't involve the same hazard of personal injury as main tracks, the jurisdiction over the slow-speed tracks should be loosened and the major effort expanded on main tracks.

With the track-inspection requirements of the standards in mind, this chief engineer, in a not-altogether-facetious vein, says he would need 20,000 track inspectors. Estimating that the cost would come to about $2 million a year, he suggests that the emphasis should be placed on production rather than inspection. Not surprisingly, it was this man who expressed the wish that the effective date of the standards would be extended to 1976.

● **Rail-defect requirements.** Other chief engineers have commented on the problems that would face them in putting the standards into effect on branch lines. These problems, on at least some roads, would stem largely from the requirements relating to defects in rails. The trouble is that train speeds must be limited to 10 mph until rails with internal defects are removed. And when the defective rails run into the hundreds, the problem of changing them out in terms of time, materials, men and money becomes staggering.

The chief engineer of a large railroad, discussing the branch-line problem that was looming on his road, remarks that now "we won't have to wait six

years for the Interstate Commerce Commission to approve the abandonment of branch lines." His exact meaning may be obscure but the implication is clear.

The problems introduced by the standards are, of course, not confined to secondary and branch lines. Application to mainline track of the requirements regarding defective rails and ties is making its contribution to the convulsive state of the M/W field. The chief engineer of a railroad that is not listed among the more affluent carriers remarks gloomily that the defective-rail requirements would require that train speeds be reduced to 10 mph over hundreds of miles of his mainline tracks. He adds that neither the men nor the materials for changing out the defective rails is available to him.

● **Even "rich" railroads hit.** These same requirements are proving bothersome even to railroads that are considered to be relatively well-maintained. The stipulation that train speeds be reduced to 10 mph in the presence of such defects as bolt-hole cracks and vertical split heads is considered extreme. Some railroads visualize their main lines as being riddled with slow orders as a result, a situation that they deplore because of its effect on the competitive position of their companies.

As more and more information comes to light regarding the impact of the FRA standards, the conviction has grown that changes in the regulations are in order. This conviction apparently has taken residence even within the FRA itself. A representative of that group was heard to remark that the standards as presently constituted "are not perfect and are not encased in concrete." He added that the FRA had wanted to develop the standards on a performance basis but that the technology to do so was not available. Therefore, it was necessary to develop design-type standards.

● **Research need seen.** In fact, both sides see the need for more research to develop the relationship between particular track conditions and the hazard to safety created by them. Track/train dynamics figure in the picture here. FRA people say they are understaffed for research but at the same time point out that some contribution can be expected ultimately from the research to be done at the DOT research center being established at Pueblo, Colo.

Most railway engineers who have expressed views on the matter of regulation are frank in admitting that their tracks are not as safe as they should be. In a guest editorial in the March issue of *Railway Track and Structures,* Allen Sams states that "Few maintenance officers would deny that track conditions are less than desirable." But he goes on to say that "Insufficient railroad revenues and steady inflation prevent the budgeting of enough funds for track maintenance." He concludes that the FRA must listen carefully to railroad criticism of the standards and then "eliminate or revise those provisions . . . which are not necessary for safety or which involve compliance costs greater than the benefits to be derived."

MAC ROGERS' agency will have responsibility for enforcing track standards.

Maintenance-of-way officers are not oblivious to the fact that the ratio of track-related train accidents to the total rose from slightly more than 14% in 1969 to 30.5% in 1970. They recognize the need for taking steps to bring this ratio down, but they insist that this should be done in such a way as to keep the costs in a reasonable relationship to the benefits. Against the estimated expenditure of $1.630 billion that would be required by the FRA standards, it is estimated that the benefits, assuming that all track-related accidents would be eliminated, would amount to $46 million.

The inference is that a more favorable cost/benefit ratio would result from application of the standards that AAR's Engineering Division developed and offered to the FRA. The AAR standards, it is held by M/W officers, were based on the minimum requirements for safety. The FRA, as one chief engineer puts it, took the AAR standards and tightened them to the point where they call for improvements in the tracks that go beyond those required for safety. What railroad men would like for the FRA to do now is to use the AAR rules as the basis for any revisions that are made.

● **Sticky questions.** Maintenance men are now faced with some sticky questions. Since there appears to be a possibility that the standards will be modified, what plans are they to make now with reference to the standards? Should they make plans based on the present rules or should they mark time pending further developments? When one chief engineer was asked to express himself on this subject he replied simply that he was "waiting to see what is going to happen."

Given time, the M/W field will work itself out of the convulsion it is now experiencing. Track-maintenance men will eventually learn to live with the idea of being subject to government safety regulations. But of this they are certain: Things will never be the same again.

● **Safety bureau's "convulsion."** Meanwhile the FRA's Bureau of Railroad Safety is undergoing its own private convulsion. This is the agency which, under the supervision of Mac E. Rogers, director, will have the responsibility for enforcing the standards. The Bureau must get ready to implement the regulations. It must recruit and train personnel for making track inspections and monitoring inspections made by the railroads. Rules of procedure for enforcing the rules must be formulated and general guidelines established looking to a uniform enforcement.

The Safety Bureau is now in only the initial stages of its preparations. The activity being carried on at this time was explained by Rolf Mowatt-Larssen, chief of the Bureau of Railroad Safety's Engineering Branch:

—The states have been certified to carry out inspection and surveillance activities. Many states have indicated such interest and have been requested to furnish additional information looking to certification in the track area.

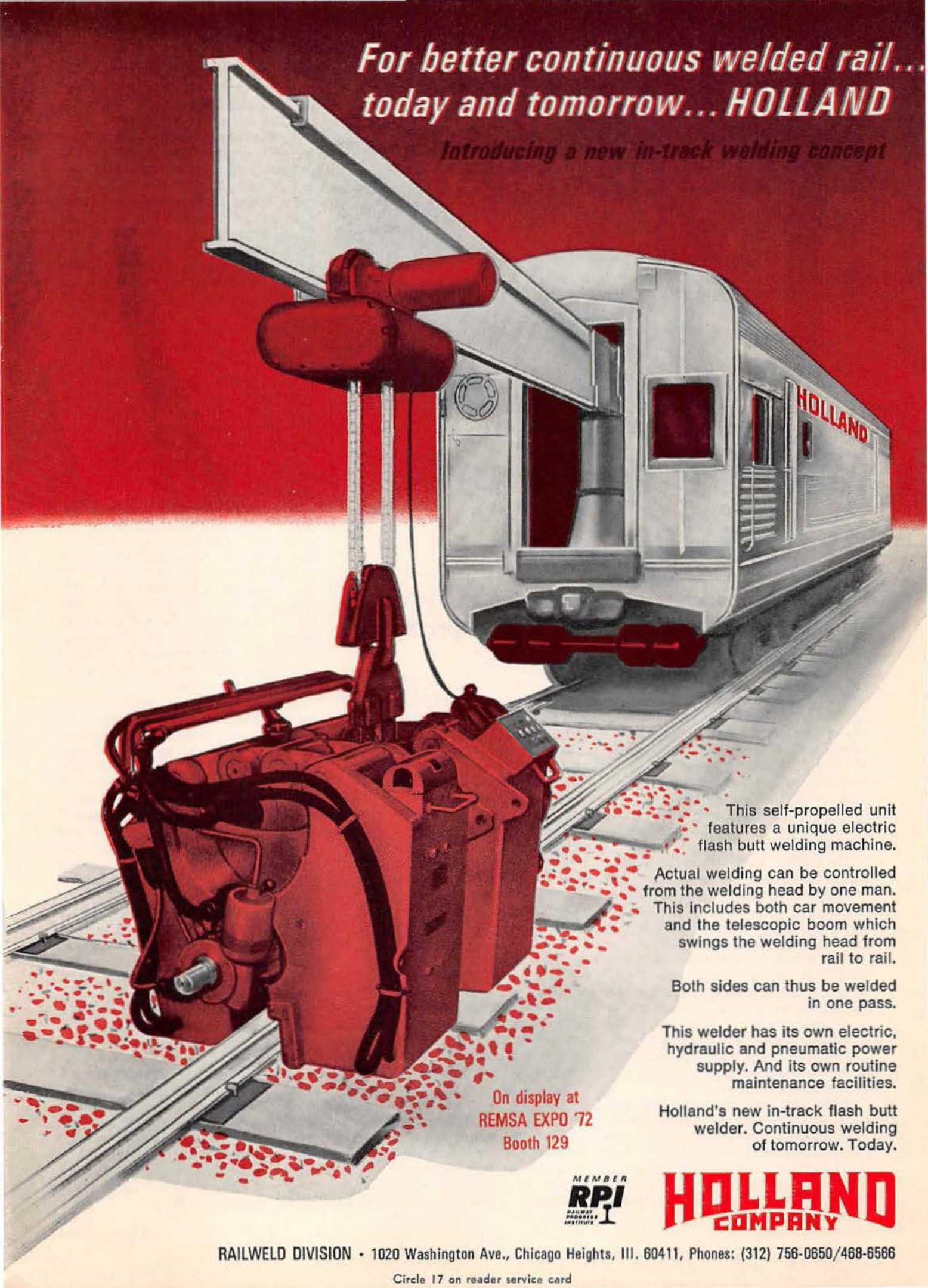
—Enforcement will be carried on through the eight existing regions into which the Safety Bureau has divided the country. The regions must be staffed with qualified engineers and inspectors. Authority is being sought to hire a total of 70 men in these categories during fiscal 1973, although not all of these will be working in the track area.

—To date the existing engineering staff, which consists of three men, has been augmented by two additions. For the time being it is contemplated that the present three engineers, all located in Washington, will be able to handle inspection and monitoring requirements in the eastern part of the country. One of the new additions will work out of Kansas City and the other will be located in Fort Worth, Tex.

Apparently the fact of government regulation of track safety has had the effect of stimulating complaints to the government about track conditions. These are coming, says Mowatt-Larssen, from such people as railroad operating personnel, commuters and persons living close to railroad property. "We answered more than 100 complaints last year," he says. Thus, it appears that the Bureau will have some help in its efforts to monitor railroad track conditions. ■

For better continuous welded rail... today and tomorrow... HOLLAND

Introducing a new in-track welding concept



This self-propelled unit features a unique electric flash butt welding machine.

Actual welding can be controlled from the welding head by one man. This includes both car movement and the telescopic boom which swings the welding head from rail to rail.

Both sides can thus be welded in one pass.

This welder has its own electric, hydraulic and pneumatic power supply. And its own routine maintenance facilities.

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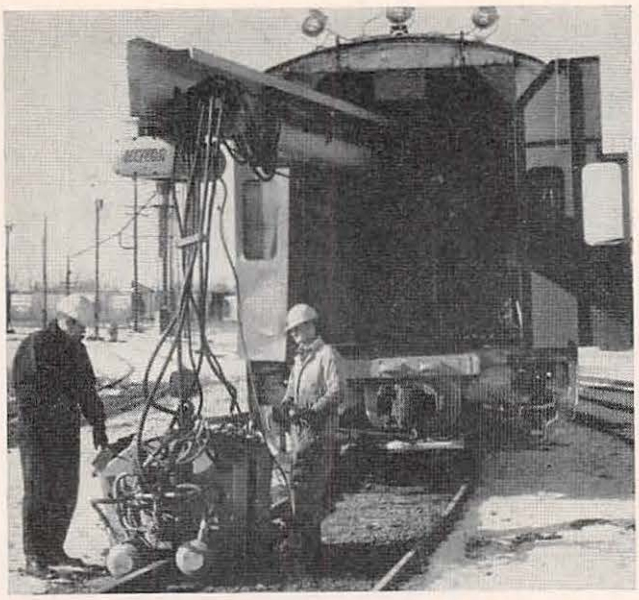


Machine welds rail in existing track

Self-sufficient unit is designed to make in-track electric-flash butt-welds at rate of eight per hour.

Bringing the welder to the rail in the field instead of the rail to the welding machine is the purpose of a new mobile rail-welding outfit. The welder, designated the Holland In-Track Rail-Welding Machine, using the electric-flash butt-welding process, has been introduced in this country by Holland Co. Railweld Division. It will be available for sale or for contract for making in-track welds.

The welding machine is mounted in a self-propelled stainless-steel car, which is equipped with driver's controls and full manual air-braking at both ends. The welder head is carried ahead of the car suspended by a trolley hoist from a 15-foot movable boom that swings the head from one rail to the other. Thus, both rails can be welded in one pass of the car at a production rate that is said to be eight welds per hour. The car is equipped with auxiliary lighting to permit working more than one shift. The head and boom are retracted inside the car for deadhead travel.

● **Strong clamping force.** The rail ends are aligned in the welding head. The electrodes clamp the sides of the rail web and are inclined slightly at the top to produce, along with spring inserts, a lifting action on the underside of the rail ball. The electrodes clamp the rail with a pressure of 125 tons and raise the rail ends to engage top reference blocks for insuring vertical alignment.

The welding head is designed in halves, each fitting and clamping one rail end. One half is immobile and the other moves in and out to produce arcing and an upsetting force. The rail webs are aligned laterally by the two halves of the welder head.

The welder head goes through a three-minute automatic welding cycle. The initial action squares up the rail ends by flashing off the irregularities. In the second action, during which time the arc does not break, a high current is introduced for rail burn-off and for generating a near-molten face, with the red-heat zone extending more than ¾-inch behind the rail-end faces. The third phase of the welding cycle is the application of a 50-ton upsetting force to bring the ends together while the full welding current is flowing.

Two control panels are provided ahead of the car. One, attached to the welding head, is used for actuating the rail electrode clamps, manual moving of the halves of the welder head, turning the electric current on and off and for starting the automatic welding cycle. The other, suspended from the trolley hoist, controls the movement of the boom, trolley hoist, two winches and the car itself. The car is capable of traveling at speeds up to 33 mph.

● **Small crew required.** The manufacturer visualizes that a work force comprised of a foreman and nine men will be required, with Holland furnishing a welder operator and a mechanic. The railroad is expected to furnish the fill-in rails, a crane for picking up and placing them, a power wrench, a rail saw or cutting-torch equipment and a grinding machine. Holland will provide the self-contained rail welding outfit and a grinding machine for polishing the rail webs for the electrode contacts.

The first operation will be the removal of the rail anchors and loosening of the rail spikes ahead off the work. A machine operator will remove the nuts, bolts and bars with the bolting machine, or a welder may be used to torch-cut the rails on each side of the joint, if this is preferred. If the rail is not torch-cut, the rail saw will be used to crop the ends.

● **Joint is cambered.** The welder operator swings the welder head over the joint and positions it accurately by means of a hydraulic-boom swing mechanism and the trolley hoist. He then drops the welder head on the rail, clamps the electrodes and uses the trolley hoist to elevate the rail ends high enough to clear the tie plates, thus providing a camber during the welding operation so that, upon cooling, the rail will have a true surface.

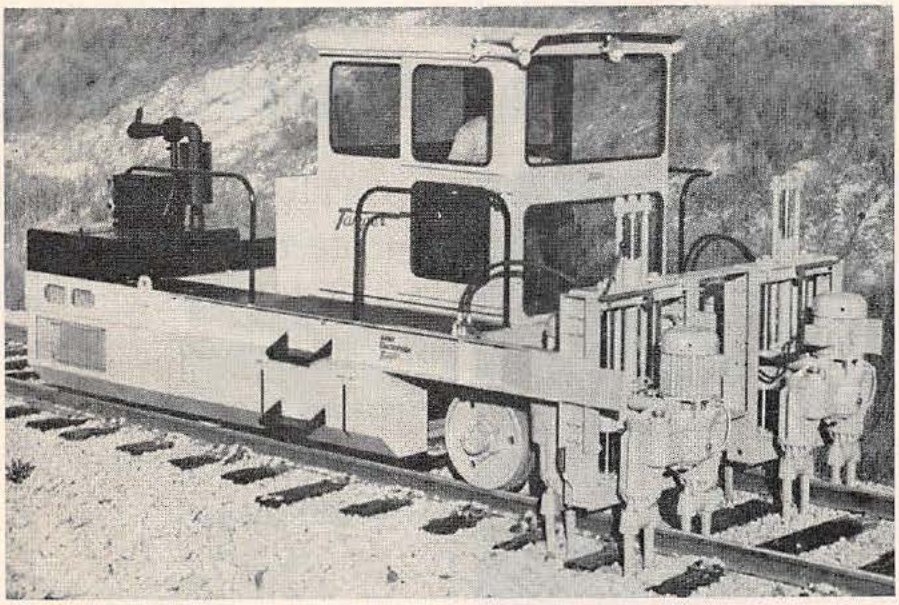
The welder operator checks the gap between the rail ends and, using the manual control, butts the ends together. If he is satisfied with the end matching, he turns on the current and manually squares the two ends by burning off any projecting metal. This is said to insure having a good weld regardless of bad cropping. When the operator sees that the arc is reaching the full height of the rail ends, he pushes the control button to actuate the automatic cycling of the welding machine.

After forging the weld, the clamping force is released, the joint is lowered and the welding head is lifted and swung away for positioning over the other rail. The welder operator moves the car at a controlled slow speed, using his pendant control panel, to spot the welder head over the joint in the opposite rail where the welding process is repeated.

The mechanic then uses an air-operated chisel for chipping off the upset metal from the top surface and sides of the rail ball at the newly made weld. The excess metal is ground off to head contour about five welds back of the welder head. Following this operation, trackmen replace the rail anchors and respike the rails. ■

AREA/AAR

Engineering Products



Air/hydraulic controls give tamper more speed

Production speeds in excess of 1,000 feet per hour and travel speeds up to 40 mph are now designed into the latest Model JrA Junior Electromatic tamper, according to the manufacturer. Air/hydraulic controls permit greater production speed and efficiency, while a selective-gear transmission allows faster travel speed, it is claimed. Other advantages of Model JrA include four-wheel disc brakes, a fully enclosed cab with optional all-weather climate control, downfeed controlled depth assuring the proper tamping prior to squeezing, and manual override on all controls, as a safeguard against the possibility of air failure. Attachments available for Model JrA include jacking, Junior Foreman, Tangent Reference Liner, Snow Switch Cleaner, the Model G Graphliner, the Model AG Auto-Graphliner and the Delta Leveling System. *Tamper.*

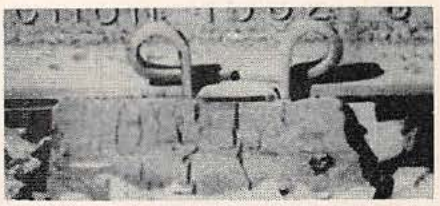
Circle 60 on reader service card

Winter rail relaying is simplified with cribber

Relaying rail in winter is facilitated through the use of a machine designated the DWD-Series Anchor Cribber. This unit was railroad developed specifically for removing frozen and cemented ballast from the eyes of the cribs. It is equipped with carbide teeth that rip out cribs fast enough to maintain the production of a rail gang. The manufacturer recommends that the Anchor Cribber be positioned immediately behind the plate-removal operation and, in turn, ahead of a brush-type cribber for sweeping loose material from the cribs and tops of ties. A tow-bar makes this machine combination a one-man job.

The Anchor Cribber is available in three models, all with Wisconsin VH4D engine as standard power and the Hatz air-cooled diesel as optional power. All are furnished with electric starting, fully filtered hydraulic system, heavy-service battery and one-day fuel tank. Model DWD-3 is an all-hydraulic drive machine with two work speeds, direct-coupled pump, large reservoir and four rail wheels to permit towing on the track. The Model DWD-4 unit is a mechanical cribber wheel drive, with overload protection and all other functions being hydraulic. Model DWD-5 is a dual-rail machine, all-hydraulic drive, narrow-gauge wheels with four-wheel drive and it can be converted for use in a conventional single-rail gang. *Railway Track-Work Co.*

Circle 61 on reader service card



Elastic rail spike offers long, maintenance-free operation

The double-shank elastic rail spike is designed for 10 to 15 years of maintenance-free operation. Made of a special grade spring steel, its adhesive strength in hardwood ties is about 11,000 pounds; the rail-to-tie-hold-down capacity is from 3,300 to 4,000 pounds. The permanent clamping effect between rail and tie provides a high frame rigidity and positive gauge control. Rail creep is controlled without the aid of rail anchors because of the high clamp-down forces, equivalent to 49% of the elastic rail spike's effective adhesive strength. *Intma International, Inc.*

Circle 62 on reader service card

MORE ENGINEERING PRODUCTS ON PAGE 36

The

"STRONGER THAN STEEL

Leadership in Engineering Pays Off For Railroads!!

RS5-HT KNUCKLE

New RS5-HT Knuckle by American Steel Foundries. Engineers designed this improved product by changing the face contour of the conventional freight car coupler knuckle.

Dateline, Chicago: American Steel Foundries, a pioneer in the railway supply industry, announced a newly improved coupler knuckle today. It will be known as the RS5-HT Knuckle.

This new development helps to reduce the slack, substantially, on any freight train. This is true even if only one RS5-HT is paired with a conventional coupler knuckle.

ASF Engineers accomplished this significant improvement just by changing the surface contour of the standard AAR Knuckle. The leadership of this company in the coupler field is indicated by the many patents granted to it over a period of 70 years.

PEOPLE" DO IT AGAIN !!

R S 5-HT Knuckle Proven Superior!

The new ASF® Knuckle has been developed to provide the following:

- Improved train handling through reduced slack!
- Lessened damage to cars and couplers!
- Interchangeability with existing equipment!
- Meets all AAR vertical and horizontal angling requirements!
- No cost increase! RS5-HT is priced the same as the AAR Std. E-50 Knuckle!
- Reduced slack results in reduced wear!
- Reduced slack also results in reduced dynamic force!

Reduced Slack in Cars at No Additional Cost!

The chart appearing below was prepared to highlight the new RS5-HT's rate of improvement. ASF Engineers have thoroughly checked the practicality of this new design. A close look at this chart shows the many advantages of this concept. Without any increase in cost, it appears that this new knuckle will change the buying practices on American railroads.

For more information, ASF's sales offices in Chicago, Baltimore, Philadelphia, St. Louis, or San Francisco will be pleased to help.

COUPLER KNUCKLE COMBINATIONS	SLACK	REDUCTION IN FREE SLACK
E50 and E50	25/32"	BASE
E50 and RS5	5/8"	20%
RS5 and RS5	5/8"	20%
F51 and E50	35/64"	BASE
F51 and RS5	3/8"	28.5%
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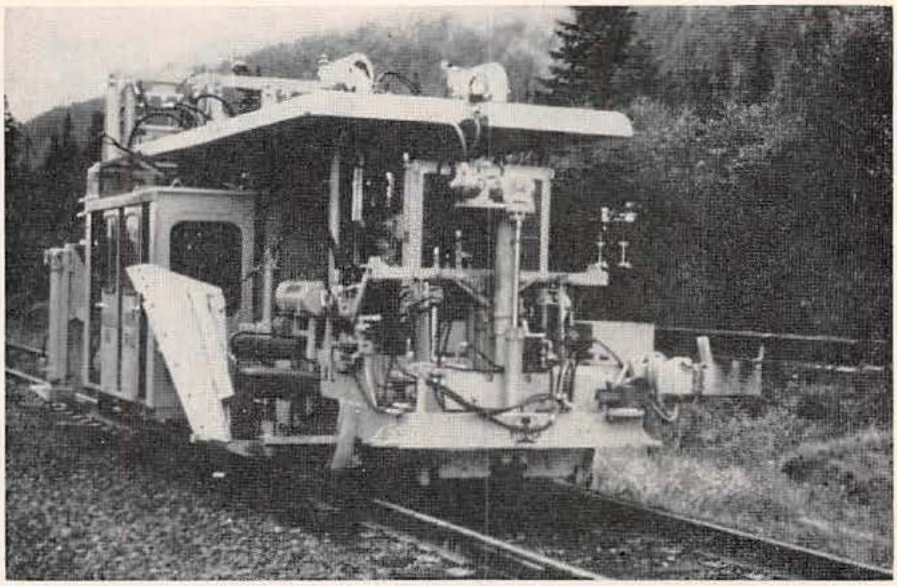
ENGINEERING PRODUCTS (Continued from page 33)

Versatile tamper performs eight different functions

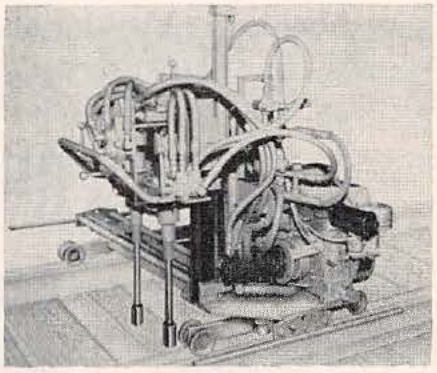
A new machine, designated the RMC Do-All Tamper, has been developed to facilitate the performance of eight track-maintenance functions. The unit was designed to allow a small crew to perform a broad range of jobs, making it particularly useful for work on remote lines. The RMC Do-All is a 16-tool production and switch tamper, which includes a series of accessories, such as a track-lining head, ballast blades and track-surfacing beam. With a heated four-man cab, the Do-All is intended to be a self-sufficient machine for remote work. The Do-All was designed to facilitate these jobs: Production tamping; switch tamping with four split four-tool heads; jacking track through the use of hydraulic rail clamps and cylinders; surfacing track by means of cable beam device; dressing ballast; lining track; drilling, sawing, wrenching and spiking by means of hand tools attached to the tamper's hydraulic system; and handling and transporting two 39-foot lengths of rails. *Railway Maintenance Corp.*



Circle 63 on reader service card

Dual wrench speeds work with track fasteners

A new unit, designated the Raco Model VHW Dual Vertical Hydraulic Wrench, has been designed to apply or remove concrete tie fastener bolts, rail-clip anchors and lag screws and/or lag bolts. A 15-hp, one cylinder, four-cycle, gasoline engine furnishes the power for a triple hydraulic gear pump. The output of two sections of the hydraulic pump is used to operate the two hydraulic wrench motors and to produce a fast preliminary rotation up to a predetermined torque at which time the output of one pump section is released to the tank with the remaining pump section producing the final desired torque. The required final torque is obtained by the adjustment of a relief valve in the hydraulic circuit for the wrench motors. The third section of the pump produces the power to raise and lower the work head and to traverse the wrench from one rail to the other. Operating pressure of the hydraulic wrench motors is 750 lb. Spindle speeds are 130 rpm at high speed and 40 rpm at low speed. The wrench work head is mounted on the Raco Model 750A Traverse Carrier which permits its use on either rail. The raising and lowering of the wrench head is hydraulically powered and manually controlled. The down pressure is adjusted to maintain contact with the bolts, nuts or lag bolts, without raising the machine. The raising pressure is adjusted to strip the sockets from the bolts, nuts or lag bolts while still under the desired torque. *Railroad Accessories Co., Division of Safetran Systems Corp.*



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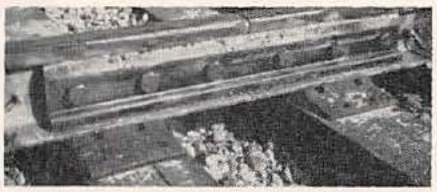


Bonding of insulated joint complete in 10 minutes

Furnished in kit form for field installation, the Portec Bonded Insulated Rail Joint has been designed to closely follow the rail-web contour to give the maximum bonding area. In the field, only the rail requires cleaning and the two-part resin system requires no mixing and each part is applied independently. Complete cure is accomplished at 120 deg F for 10 minutes, it is claimed. No cooling is required. *Railway Products Division, Portec, Inc.*

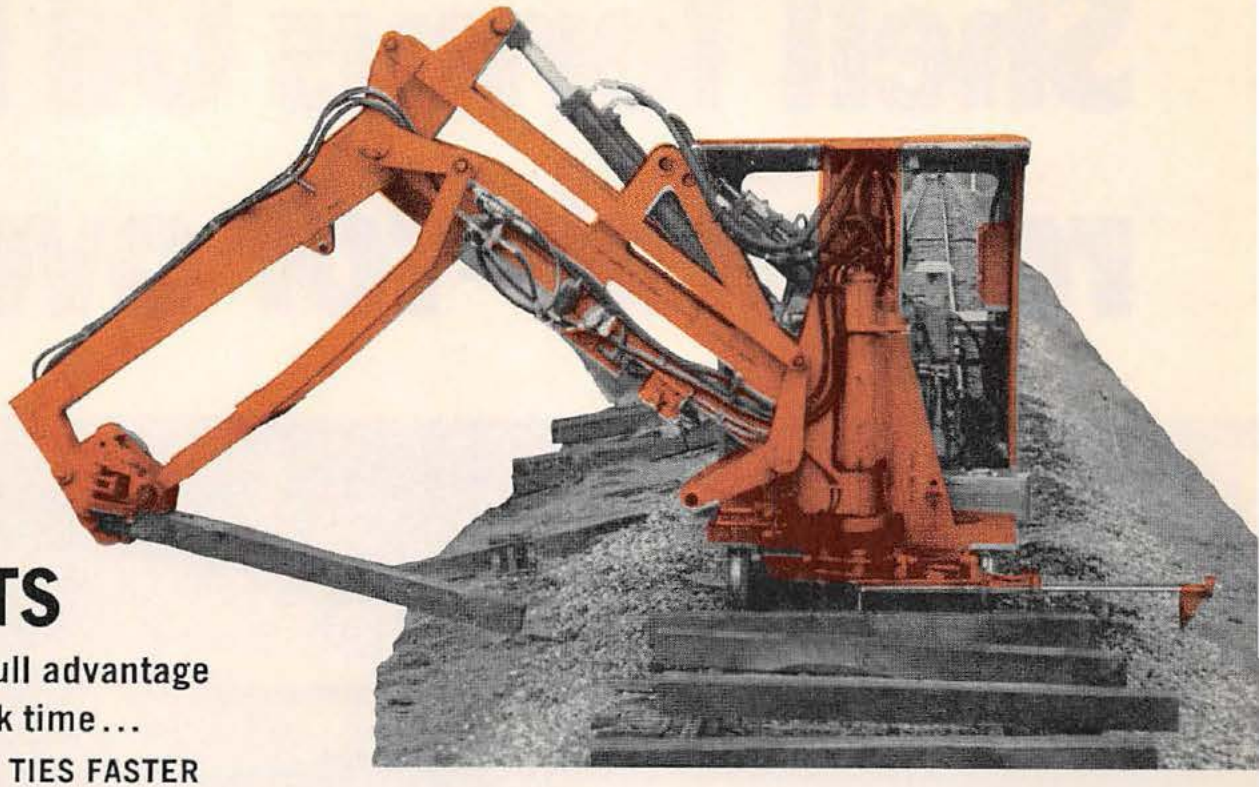
Circle 65 on reader service card

Track conditions rated by roll recorder

A new device is being offered which measures and records the roll action of any selected freight or passenger car to variations in cross level or super-elevation. The device also can be used to compare response or reliability of snubbers and the quality of truck stabilization. An aircraft-type gyroscope feeds the roll information to a remote-control unit containing a dial for indicating the roll amplitude. Provision is included for an alarm system based on variable set points. The assembly includes a strip chart recorder that permits analysis to be made in real time. *Sonic Chicago*

Circle 66 on reader service card

MORE ENGINEERING PRODUCTS ON PAGE 40



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INSERT TIES FASTER

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Moves to and from the job in a hurry... inserts up to 4+ ties per minute*.

Simple push button controls and full view of operation make it easy for a man to learn and quickly become an efficient operator. Full cycle (move and locate machine, pick tie off rails and insert) takes as little as 12 seconds. Inserts from either side. Diesel engine provides hydraulic power for efficient operation through simplified Electro-Hydraulic Control System. Simplicity of design with positive action reduces maintenance problems to a minimum. Travels up to 22 mph., forward or reverse, with boom swung forward between rails. Air-Hydraulic caliper disc brakes on both axles. Hydraulic powered turn-table set-off standard equipment. Equipment to shove out old and insert new tie in one operation available as optional extra.

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220 Ties inserted in 100 minutes total track time. Actual working time 63 minutes. (Program 25% tie renewal)

30 Ties in 6 minutes 15 seconds working time. (Program 40% tie renewal)

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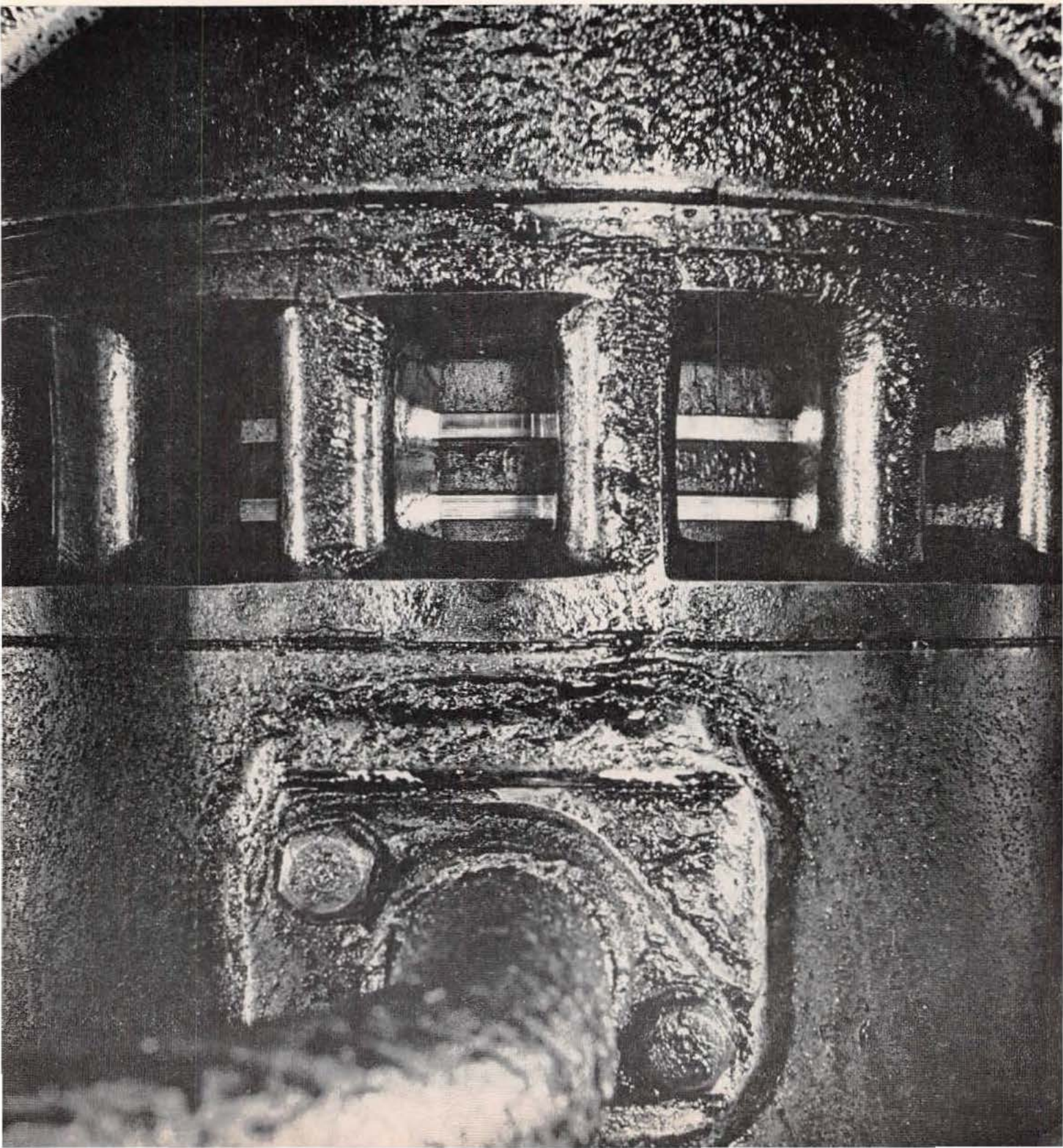
Circle 19 on reader service card

Shell Tornus® Oil has railroad–for over a



been working on the half billion miles.

High performance TORNUS Oil has been helping over 2100 EMD diesels run at top efficiency for 18 leading railroads. Total track miles to date: over 650,000,000. Good idea to get acquainted with this oil.

There are many convincing reasons why Shell TORNUS Oil is preferred by leading railroads. One big reason is better performance for EMD's, resulting in long-term cost savings over conventional oils. Just look what this oil does:

It helps keep engines clean—TORNUS Oil contains dispersant additives that keep carbon and soot particles in suspension. The oil gets dirty instead of the engine.

Result: lower engine operating temperatures, freedom from ring-sticking, oil ring plugging and deposits in the intake air ports that can steal power.

It provides anti-wear protection—This oil maintains an alkaline reserve that helps protect engine parts against corrosive wear.

It helps prevent engine damage from water leaks—The additives in TORNUS Oil help it "swallow" water. There's less danger to engines when minor water leaks occur.

It provides safe lubrication over extended service intervals—With TORNUS Oil, periods between cleaning of oil coolers are longer than with conventional oils. Oil filter life is two to three times better. Oil quality between changes can be maintained and drain life extended.

It helps reduce the frequency of engine shutdowns—TORNUS Oil stretches the time between costly shutdowns caused by plugged filters and hot oil alarms. It helps keep oil coolers clean and keeps trouble-causing particles in suspension.

Efficiency plus savings

Add up these advantages and you see that TORNUS Oil not only helps EMD's maintain efficient operation; it can offer users of conventional oils long-term savings as well. Savings through less frequent replacement of moving parts such as pistons and bearings. Savings in engine clean-up time at overhaul.

Shell specialists made TORNUS Oil the hard-working, stable oil it is today. And they're not sitting on their hands. They're watching the horsepower curves. They're thinking about the next generation of Shell lubricants for high-output engines. Keep an eye on Shell.

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Shell Tornus® Oil

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◀ AFTER 94,360 MILES, the No. 3 cylinder of this EMD-SD-40 on TORNUS Oil is exceptionally clean. No power-robbing deposits on air intake ports. Rings are in excellent shape. Original hone marks are still clearly visible on the liner. EMD-SD-45 diesels are typical examples of the more than 2100 EMD engines throughout the country using TORNUS Oil.

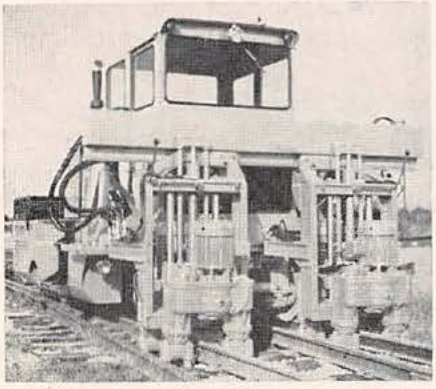
Circle 20 on reader service card

Frame and drive of cleaner have been redesigned

A large number of improvements have been made in the construction and design of the Kershaw Yard Cleaner. The main frame, now of welded steel, has been redesigned to make the bucket-elevator frame an integral part. The drive has been improved to replace the open center hydrostatically driven, three-speed transmission with a chain drive to axle by a closed-loop, hydrostatically driven, axle-mounted, two-speed transmission. Both drive axles are now leaf-spring mounted and the wheel diameter has been increased to 24 inches. The hydraulic system has been redesigned and simplified for better access and cleanliness and the capacity of the hydraulic oil reservoir has been increased to 200 gal. As an option, a 270-gal-capacity fuel tank is available for permitting continuous work up to 55 hr. A truck-type fifth wheel is used in place of the debris-conveyor turntable to simplify machine separation/assembly. The cat walk has been relocated on the right side of the debris

conveyor where it is visible from the cab. The latter is now smaller and folds inside for additional clearance. The Yard Cleaner is available with highway trailer axles to convert the machine into two trailers for rapid over-the-road moves. *Kershaw Manufacturing Co.*

Circle 67 on reader service card



Tamper cab gives unobstructed view of each tie

An unobstructed view of each tie being tamped and the comfort of a sound-dampened fully enclosed cab, with optional all-weather climate control, are among the advantages now built into the newest Switch Electromatic Model STA machine. A semi-automatic sequence of operation, which is air-hydraulic and finger-tip controlled by the operator, provide Model STA with quality production at rated speeds in excess of 1,000 feet per hour, it is claimed. Now designed into this model are four-wheel disc brakes, a selective-gear transmission that allows travel speeds up to 40 mph, controlled down-feed depth, assuring the proper tamping depth prior to squeeze-in, and manual override on all controls as a safeguard against the possibility of air failure. Attachments available for Model STA include jacking, Junior Foreman, Tangent Reference Liner, Snow Switch Cleaner, the Model G Graphliner, Model AG Auto-Graphliner and the Delta Leveling System. *Tamper.*

Circle 68 on reader service card

Spike driver features hydraulic operation

Recently introduced is a compact lightweight, hand-held, hydraulic spike driver and concrete breaker. Total weight is only 75 lb, it is said, and working capacity is equal to the standard 90-lb air hammer. This unit can be operated from any machine, truck, tractor or power unit having a hydraulic power take-off with a capacity of 6 gallons per minute at 1500 psi pressure and a reservoir of 10 gallons or more. The manufacturer points out that much longer life and low maintenance can be expected because all moving parts are self-lubricating. Less operator fatigue is achieved through a patented hydraulic cushioning action that minimizes recoil. Tools used are U.S. Standard 1⅛-inch hexagon, 6 inches above shoulder. Another distinct advantage claimed by the manufacturer is the major reduction of noise level as compared to air tools. *Racine Railroad Products, Inc.*

Circle 69 on reader service card

New alloy helical washer exceeds current specifications

Improvements in the National line of helical spring track washers has been announced. The most significant improvement is the utilization of a new alloy chemistry. Resulting from experimentation in conjunction with metallurgical engineers at cooperating steel mills, the new materials are claimed to yield a helical spring track washer with reactive pressures far exceeding any current AREA specifications. In addition to greater pressure, the new alloy-steel chemistry reduces the potential for defects and allows better control over the manufacturing stage due to its greater metallurgical uniformity, it is said. The improvement applies to the Improved Hipower spring washers and Super Hipower spring washers, as well as the Collar Grooved, and Super Collar Grooved spring washers. *National Lock Washer Co.*

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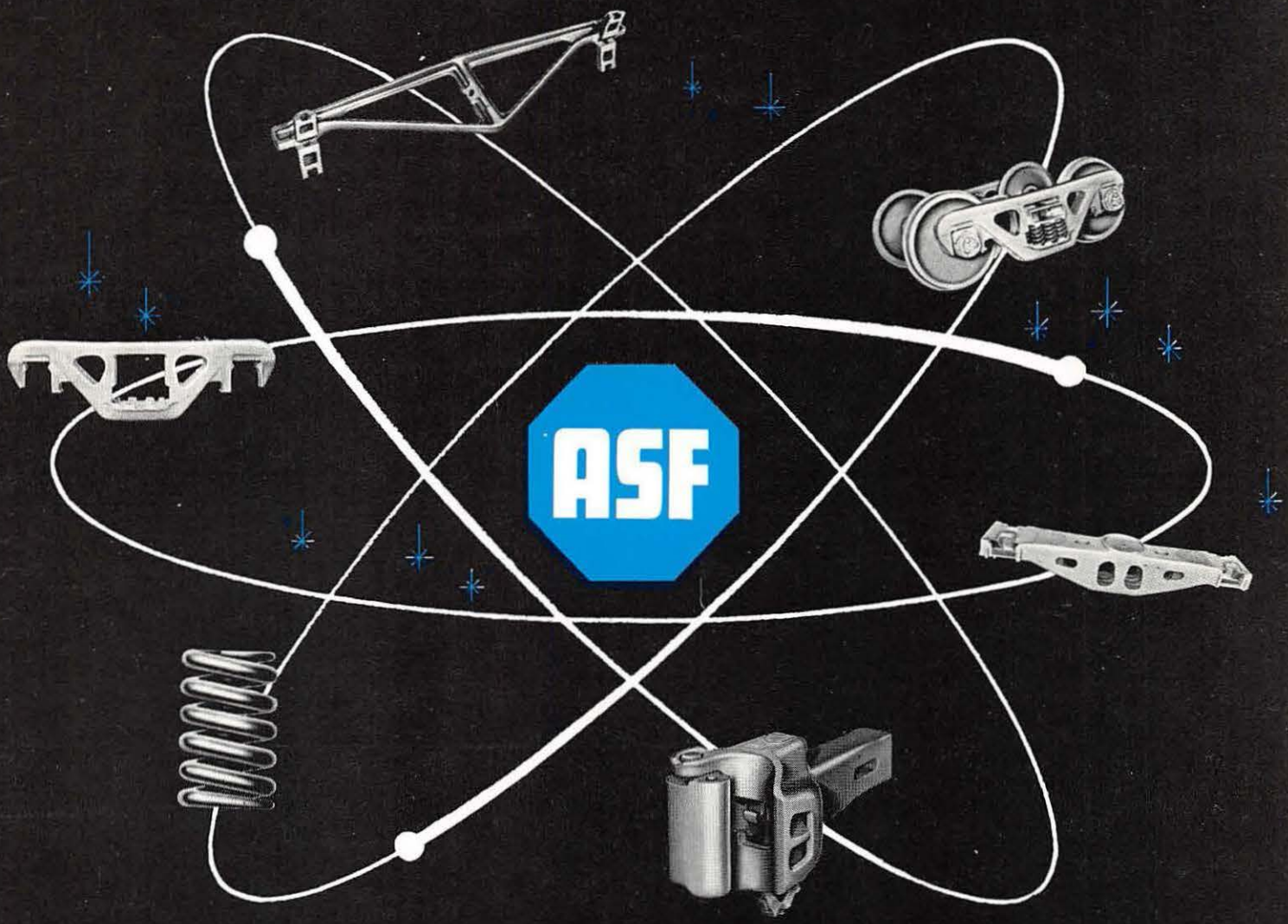
MORE ENGINEERING PRODUCTS ON PAGE 47



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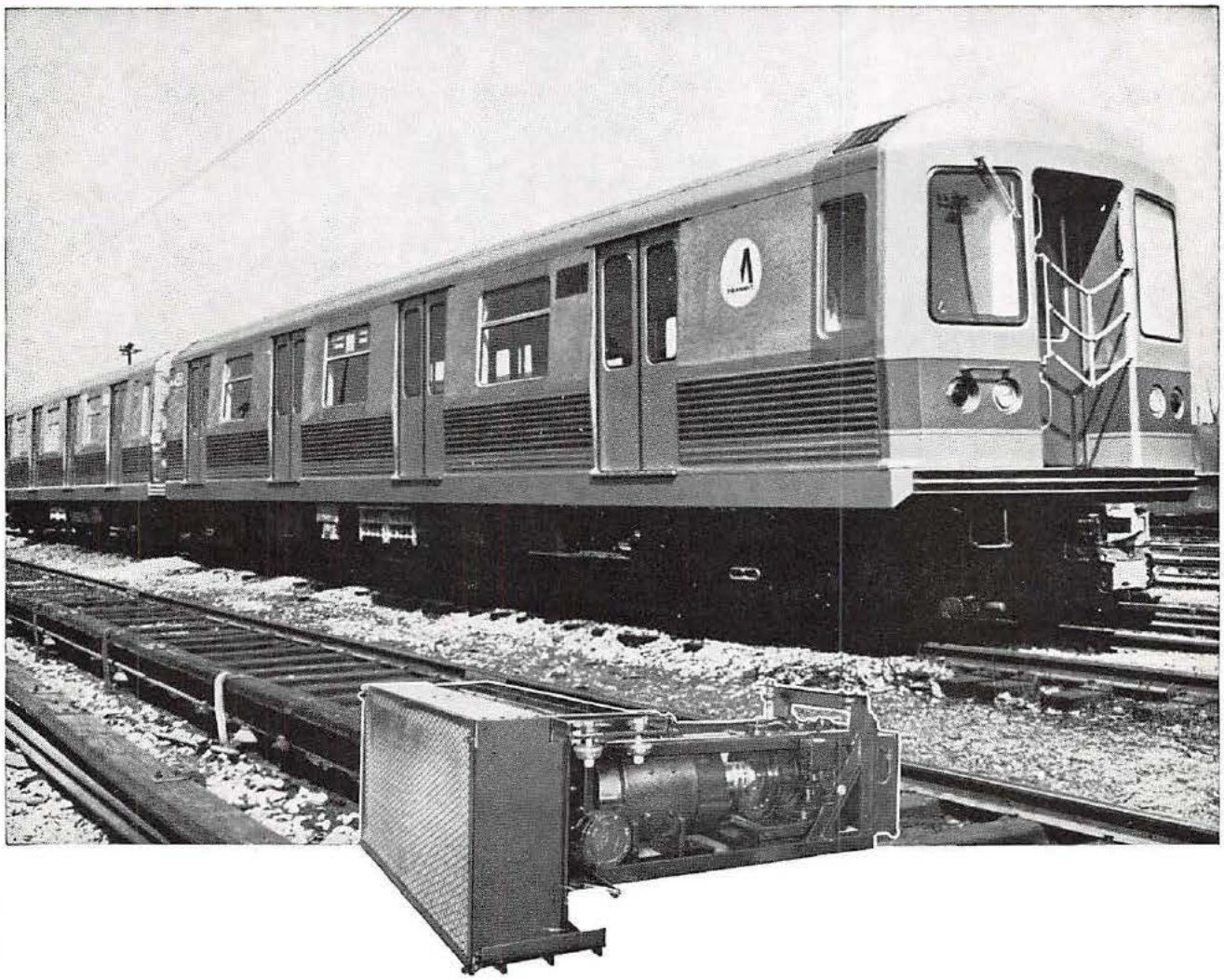
"Safety" air conditioning: the system of the 70's



Over 600 "Safety" units keep things cool on these NYCTA cars. The component type air conditioning equipment consists of two independent systems, each rated 10-ton refrigeration capacity, which are regulated by a common temperature control unit. During operation, a mixture of filtered outside air and air recirculated from within the car is drawn into the overhead evaporator and blower units, conditioned, and diffused into the car body.

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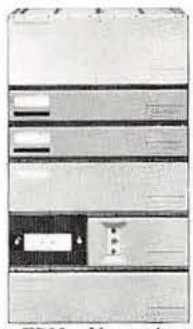
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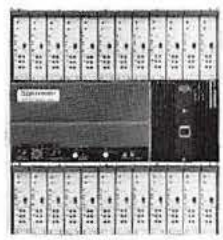
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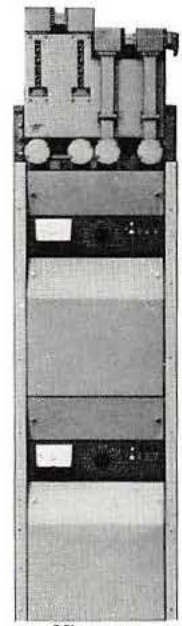
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And that's what we're talking about when we say **Slim-Line** "fits in."

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The **Slim-Line** door control system is just one of the "advance concept" product ideas Vapor has developed in conjunction with transit authorities, consulting engineers and carbuilders.

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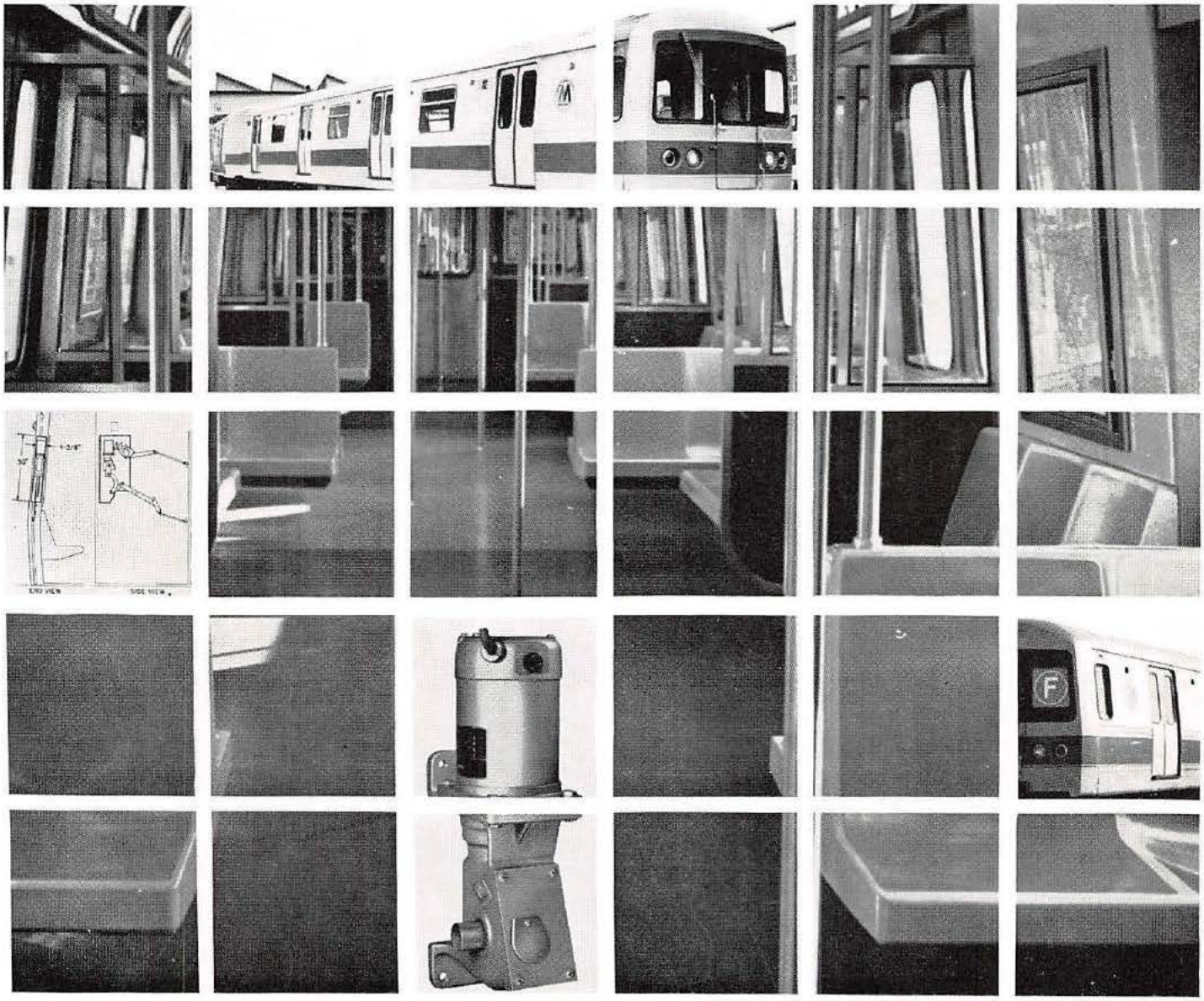
For information contact the Transportation Systems Division, Vapor Corporation, 6420 West Howard Street, Chicago, Illinois 60648. In Canada, Vapor Canada Limited.



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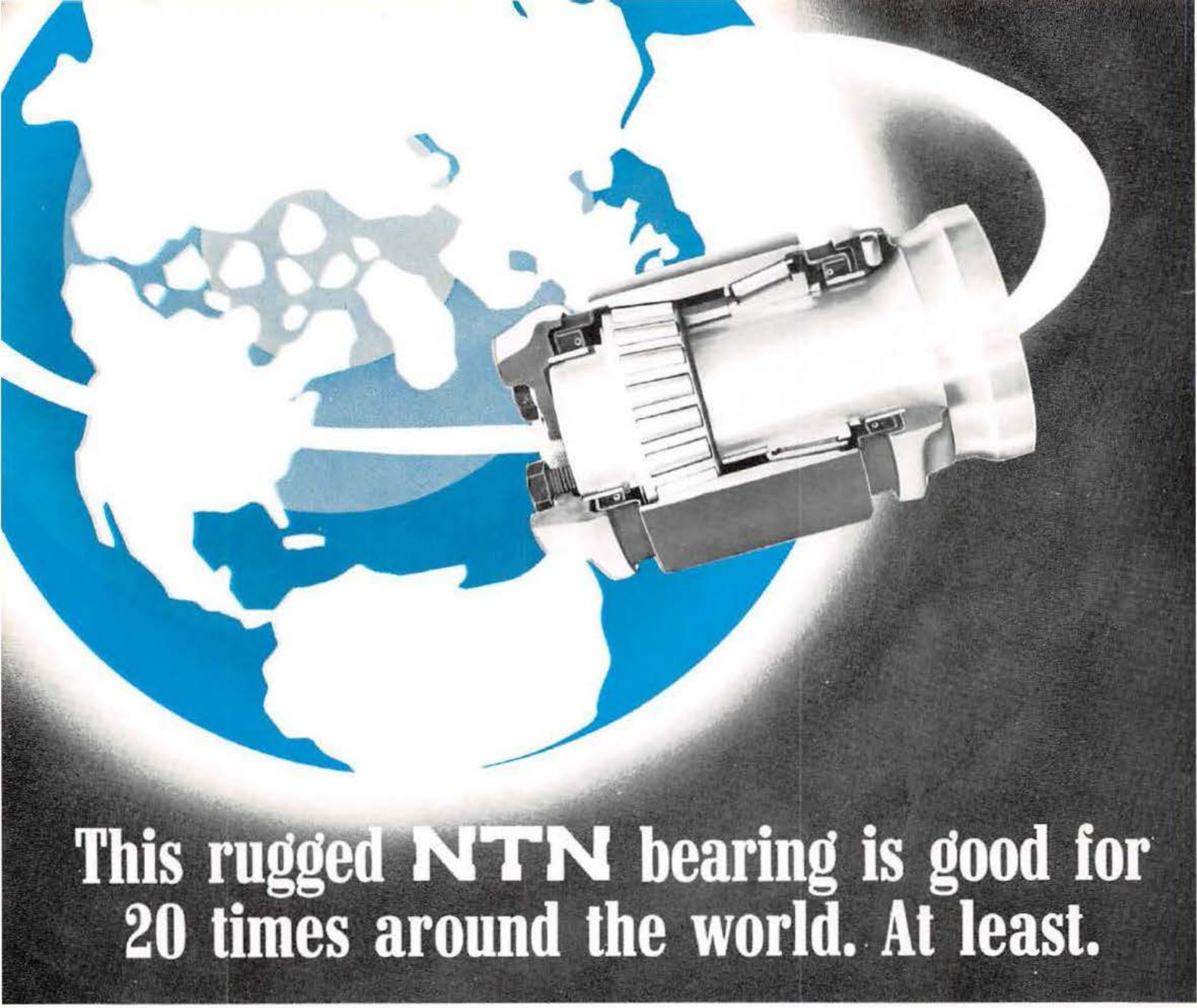

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One man operates dual-function tie inserter

Fairmont's new W119-A Tie Inserter, a one-man-operated unit, is said to insert, level and square new ties tight under the rail at the rate of three plus ties per min. No re-spotting or manhandling of ties is required. All functions, including an inserting force of 8,850 lb, are hydraulically powered and electronically controlled with very little operator effort. A three-section telescoping boom provides a reach of 14 feet from the track center line. It has a lift of 1,000 lb when fully extended. The manufacturer states that this machine is basically built for continuous tie inserting, but can also be doubled as a tie handler, making it a dual-purpose machine. *Fairmont Railway Motors, Inc.*

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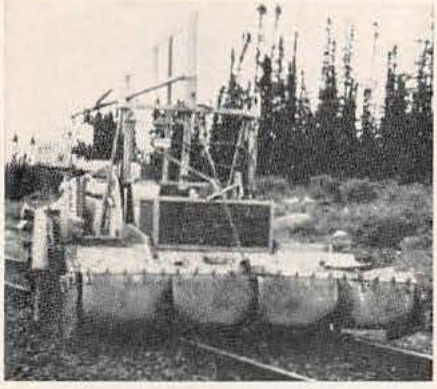

Unattended broom can sweep ballast behind surfacing gang

The RMC Track Broom is intended for operation behind a tie and surfacing gang, sweeping ballast from the ties into the cribs. It sweeps continuously without an operator at approximately ½ mph. The hydraulically driven broom is composed of a series of brushes made of air-brake hose. In service, the basic machine is towed to the work site. However, an alternate version, equipped with transmission for traveling to and from the work site, also is available. In this version, an operator's seat, controls and four-wheel brakes are provided. Power is furnished by a 2-53 diesel engine which drives hydraulic motors for revolving the broom continuously. The machine includes 16-inch wheels and a shield which confines the ballast as it is swept clear. An optional boom and remote-control equipment are available. The boom is extended to the front so that controls on the boom can be used to stop the machine at any time. *Railway Maintenance Corp.*

Circle 72 on reader service card

Lightweight saw designed for precise, fast cutting

A new Model 140 lightweight portable Rail Saw has been announced for cutting rail in or out of the track. It will cut from 60-lb to 140-lb sections and its net weight is approximately 187 lb. A new smaller saw frame provides greater rigidity for more accurate and faster cutting, it is said. The machine clamps tightly to the rail to insure perfect alignment. A coolant tank is provided to increase blade life. Blade size is 14 inches by 1¼ inches by 0.062 inch by 6 tooth. The standard unit is driven by a gasoline engine, but air, electric and hydraulic drives are available. *Racine Railroad Products, Inc.*

Circle 73 on reader service card

Redesign involves easier maintenance, new controls

The Kershaw Track Liner has been redesigned in a number of respects. The lining operation still maintains the inertia concept, with the weight and weight box, but other changes have been made. All components have been made readily accessible and easier to maintain. Other improvements include: Wheel-carriage geometry; powered set-off wheels (turntable used only to turn machine around); easily accessible valve bank; pump and air compressor direct-mounted to 3-53 engine; propelling motors can be declutched for towing; and a device to prevent misalignment of machine during lining. A new and different system to provide control in operating the weight has been designed. This system automatically cycles the weight for moving the track into position. A variable lining force is applied, depending upon the extent of lever travel. A small amount of lever travel applies a small amount of lining force, which will continue to cycle until the lever is returned to neutral. Additional lever travel will provide increasingly larger lining force. The propelling motors are of larger capacity, which will give the machine a clearing speed of 20 mph and increased torque in moving from spot to spot. *Kershaw Manufacturing Co.*

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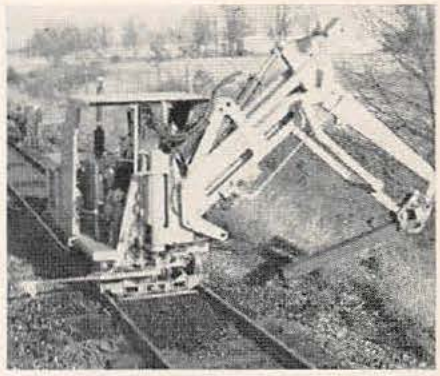

More power, new control for tie inserter

The Mannix Tie Inserter has been re-engineered to provide a number of improvements. The frame has been strengthened and increased in size. When working, it is 16 feet 6 inches long, 22 feet wide and 13 feet 10 inches high. When traveling light up to 22 mph, it is 22 feet long, 6 feet 1 inch wide and 13 feet 10 inches high. It now weighs 29,000 lb. The power unit of the Tie Inserter has been beefed up to a 4-53 diesel engine which produces 87 hp continuous at 2200 rpm. It is operated through a simplified electro-hydraulic control system. Just two electric push buttons, one foot brake and one automatic transmission control lever enable the machine to operate at maximum tie-insertion speed. The hydraulic tank capacity has been increased to 200 gallons. *Maintenance of Way Division, Mannix Construction Co.*

Circle 75 on reader service card

MOVING PEOPLE

Atlanta gets started on big transit program

The Metropolitan Atlanta Rapid Transit Authority has now taken the first major steps in implementing the $1.3-billion rail and bus rapid transit programs approved by voters in Fulton and DeKalb counties Nov. 9, 1971. On Feb. 17, MARTA purchased the Atlanta Transit System and announced that bus fares would be reduced from 40 to 15 cents on March 1. The purchase price was $12,816,695. Said MARTA Chairman Roy A. Blount: "The purchase of Atlanta Transit System by MARTA means we have now made the transition from a planning agency to an operating agency." Imposition of a one-cent local transit sales tax made this possible—and will also make possible a long-range program under which MARTA plans to build a new transit system to include 50 miles of rail and 14 miles of express busways (RA, Dec. 13, 1971, p. 26).

WMATA plans study of Metro-feeder systems

About 4½ miles of Washington's Metro rapid rail system will open on July 4, 1974, and the entire 98-mile system is to be completed by the end of 1979. But Metro involves more than rail transit. Officials of the Washington Metropolitan Area Transit Authority know, from preliminary ridership forecasts, that some 70% of future Metro patrons will ride buses as part of their total trip. So WMATA is now seeking proposals from consulting firms for a study, to be conducted under a $1.6-million short-range transit development program, that is to turn up recommendations for a feeder bus network, express routes and crosstown and cross-county bus coverage to complement Metro. The study is to be conducted in cooperation with WMATA and four privately-owned area bus companies.

Rohr wins Phase II TACV contract

The Urban Mass Transportation Administration (DOT) has awarded a contract to Rohr for the second phase of a program to develop a tracked air-cushion vehicle (TACV) for operation at speeds up to 150 mph. Rohr will build an operating prototype TACV vehicle, construct a short test guideway at its Chula Vista, Calif., plant, and conduct engineering tests during this phase, scheduled for completion early in 1973. The contract is valued at $5 million.

Boston moves to acquire commuter trackage

The board of directors of the Massachusetts Bay Transportation Authority voted Feb. 16 to approve a "resolution of concurrence" with a Commonwealth of Massachusetts plan to acquire 145 miles of Penn Central track within the state for commuter service. Under the scheme, the state and MBTA would apply for a $19.5-million grant from the Federal Urban Mass Transportation Administration (DOT) for the track acquisition. An engineering study is under way for a similar acquisition of Boston & Maine interstate track.

Rail, commercial shops share Amtrak business

Refurbishing of Amtrak's 1,240 cars is being farmed out to the shops of both railroads and commercial carbuilders. Involved are Santa Fe's Topeka shops; Burlington Northern's Como Shop at St. Paul; Illinois Central's Woodcrest Shop at Homewood, Ill.; Penn Central's Beech Grove Shop at Indianapolis; and Jacksonville (Fla.) Terminal Co.; plus the shops of Pullman-Standard, Chicago; Hamburg Industries, Hamburg, S.C.; Auto-Liner, Omaha, Neb.; GSI's St. Louis Car Division; and the Budd Co., Philadelphia.

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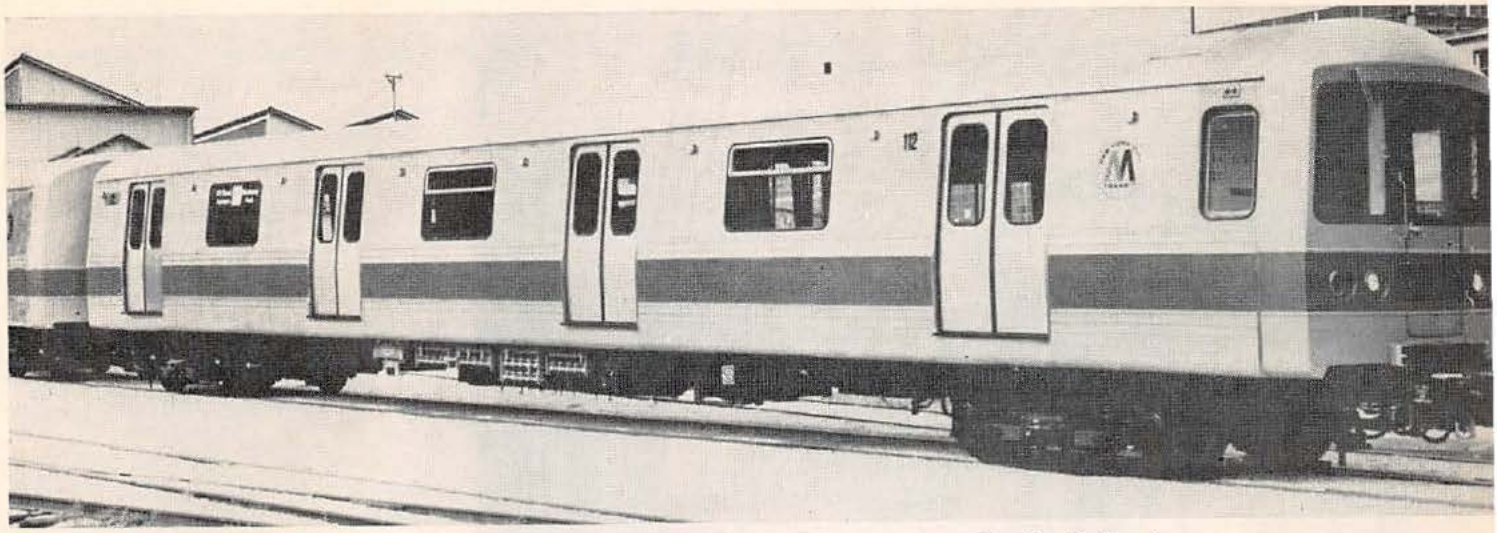


SEVENTY-FIVE FEET LONG, and rated at 70-mph, new GSI-built cars are by any measure New York's finest.

New York: R-44s set a fast pace

By **ROBERT D. BARTLEY,** Associate Editor

After undergoing perhaps the most grueling, fingernail-biting battery of in-service tests a new rapid transit car has ever been subjected to, New York City's long-awaited R-44 finally emerged earlier this year as a real champion. For 30 consecutive days, an eight-car train of fresh-off-the-assembly-line R-44s performed flawlessly, 20 hours a day, thus setting the stage for delivery of the remaining cars in the 352-car order.

Had the test train failed to perform as specified by the New York Metropolitan Transportation Authority, delivery of additional cars from St. Louis Car Co., the builder, would have been held up, and would not have resumed until the 30 consecutive days of operation of the train without a breakdown had been accomplished. The last two or three days of the test period have been described as real nail-biters, partly due to the fact that a computer had predicted that the train wouldn't pass the test on the initial try.

"These unquestionably will be the most thoroughly tested rapid transit cars that have ever gone into service in this country," commented William J. Ronan, chairman of the MTA. "In addition to the usual stress and fatigue tests . . . . they have also undergone testing on steep grades with half the motors off. Most of these tests are firsts for rapid transit cars, and we are pleased with the way these new cars have been performing."

● **New York's longest.** The 352 new R-44 rapid transit cars are—at 75 feet—the longest ever designed for subway operation in New York. While riders will surely marvel at the added 15 feet of length when they first board the $210,000 vehicles, they are also going to discover that the new cars aren't by any means short in either comfort or eye appeal. And, better yet, they are capable of operating faster than anything New York subway riders have been introduced to so far, with a peak operating speed of 70 mph as compared with a limit of 50 mph with existing equipment.

During its speed performance test, the eight-car test train attained a record 83 mph speed. Then, in a simulated full load test (achieved by cutting out the motors in two cars), the silver and blue train reached 77 mph. This portion of the testing, performed on a main track of the Long Island Rail Road, saw speeds attained that will not be needed in the foreseeable future on any subway lines in New York. Furthermore, as yet, the new lines for which the R-44's 70-mph operating speed is designed are not built.

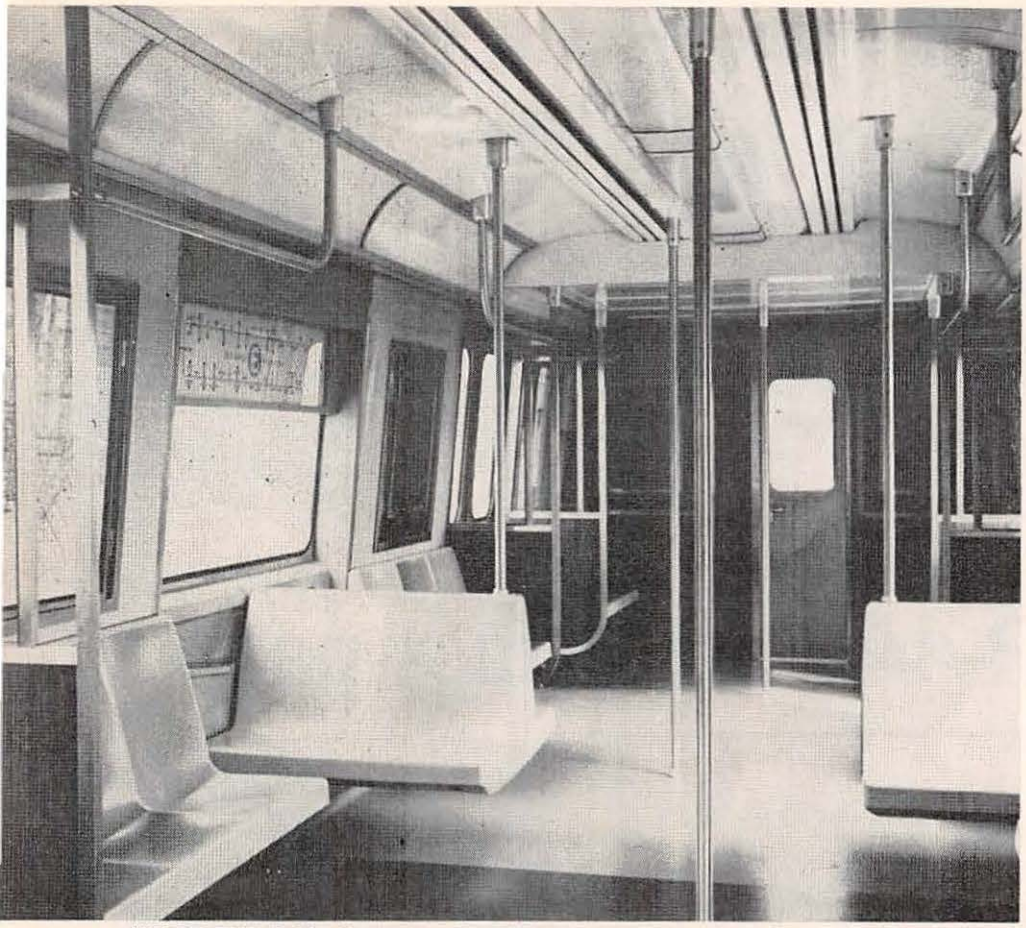
● **4,200, plus.** When St. Louis Car completes it, this order will bring to over 4,200 the number of cars that the St. Louis firm has built for New York subway operation in the past 15 years. The first four cars in the order were delivered in October of last year. An eight-car pilot train ultimately was assigned to the series of tests which had to be performed successfully before cars remaining in the order could be delivered. New cars are expected to be coming on the scene in greater numbers now that the tests are over.

> "We believe we have achieved a milestone in transit-car production."
>
> —W. Ashley Gray, Jr., President, GSI

W. Ashley Gray, Jr., president of General Steel Industries, Inc., parent firm of St. Louis Car, comments, "There is no question, bringing the R-44 cars—with all their advanced technology—to this state has been a long and difficult job. But as a result, we believe we have achieved a milestone in transit-car production."

St. Louis Car President Robert E. Henderson credits the achievements of the cars to the assembly of "a new breed of people" at the firm. "These are people qualified to deal with the complex electro-mechanical systems that the new cars represent. This, of course, is coupled with car-building know-how."

It means, according to Henderson,



INSIDE THE R-44s: Seats, made of fiberglass-reinforced plastic, come in both longitudinal and transverse arrangements. Sundberg-Ferar styled the cars.

that "these are well-engineered, well-manufactured cars representing the latest in technology and quality control in production. This means cars can go into service quicker and set performance records for reliability in the process."

● **Assignments set.** As they arrive, the first 300 cars will be assigned to the New York City Transit Authority's B Division. This division came about through the merger of the former IND and BMT lines. The final 52 cars in the order will be assigned to the Staten Island Transit Line.

It was at the instigation of MTA, the state agency that operates both NYCTA and the Long Island Rail Road, that the decision was made to seek longer cars under the R-44 contract. Since economy is a frequent companion of vehicle length, the decision to order 75-foot cars rather than ones 15 feet shorter was a relatively easy one to make.

Coming up with a car design which would fill the total bill was not all that easy, though. Actually, a design team from various NYCTA departments drew up the specifications. Aside from seeking new length, however, this team had to keep other important system needs in mind. Things like efficient car performance, rider comfort, possible future automation, plus other features, had to be given full consideration. Furthermore, any design drawn up would have to fit existing facilities and not force any extensive track, subway or station changes.

No clearance problems

The 75-foot stainless steel cars fit very comfortably in the subway system. As it turned out, removal of a minimum amount of obstructions was required on some subway curves to provide proper clearance and very little re-spacing of the third-rail gaps was necessary because of the longer truck centers.

At the 600-foot stations along the system, an eight-car train of new cars will be able to do what a 10-car train of older cars is now doing. For example, although they will have fewer cars, the new trains will still carry as many passengers—700, including 296 seated—as the older ones. The doorways in the new cars—four per side—should be more appealing to riders, NYCTA feels. They feature double-leaf panels, with each leaf operated by a newly-designed electric Vapor door operator.

Air conditioning, rated at 18 tons in some of the older cars, had to be boosted to 20 tons in the larger cars. Safety Electrical Equipment Corp. is the supplier.

Seating, strictly longitudinal in some older cars, is a combination of longitudinal and traverse in the new ones.

While the seat material may be the same, that is where the similarity ends. Whereas "cool" colors were used inside cars built earlier, the new cars feature much warmer, more vibrant colors. The seats are beige, and yellow, orange and red-orange, and the different colored seats are scattered throughout. The floors are beige and red and the walls and ends are finished in simulated wood-grain panels. Although NYCTA developed the basic design for the cars, the firm of Sundberg-Ferar styled them and put in the finishing touches.

● **Paired operation.** Like other NYCTA cars, the new R-44s are designed and fitted to operate in pairs. The "A" cars, which have cabs, will seat 72; the cab-less "B" cars will seat 76. Free-running peak speed is rated at 70 mph, with acceleration listed at 2.5 mphps. Deceleration from 70 mph to a dead stop, meanwhile, can be accomplished within a span of 2,000 to 2,250 feet at 3 mphps. New NYCTA lines are to be designed for high-speed train operation. However, the R-44s are capable of operation on existing lines. A combined dynamic and automatic electronic-pneumatic friction-type braking system is featured.

Major changes have been incorporated into the electrical and electronic systems of the 75-footers. A complete public address system, combined with train intercommunications and two-way radio, is a key feature. Also, automatic train operation (ATO) has been built into the cars, although it will not be employed at the outset. This system is designed to couple inductively with wayside coils to identify and direct cars automatically over the system. This system was given severe operating tests during the initial series of tests prior to acceptance of the car earlier this year.

An hydraulic braking system which requires no air compressor was tested. Also, a new air-spring suspension system, somewhat different from the suspension system under remaining cars in the order, was tested. And, if it's available before the order is completed, a new air conditioner featuring an AC motor will be tried in eight cars.

To assist NYCTA maintenance forces, a special Westinghouse diagnostic console is being provided to (1) verify the proper dynamic operation of the cars, (2) diagnose malfunctions and (3) assist in the calibration of the propulsion system ■

LEAVE THE DRIVING TO US: Good looks and convenience make the Metro hard to beat. So traffic is up.

Montreal's success story: Metro

By JOE ASHER

In Montreal, they don't just talk about transit, they do something about it. They built a Metro. They liked it. They had five years experience living with it. And now they're going to more than double its size in the next decade.

The existing system was started in 1961 and opened for operation in 1966. Built at a cost of $215 million, it's 13.7 miles long, has three lines, and 26 stations. It carries over 120 million passengers a year, and has won almost every kind of award for safety, good looks and convenience. A big incentive for building it was Montreal's Expo '67, and it performed beautifully, handling the crush of millions of visitors to the city for the big show. Mayor Jean Drapeau made the Metro a key plank in his program, and the result was his repeated reelection—the last time was this past October when he got 92% of the vote.

Like Drapeau, Lucien L'Allier importantly staked his career on the Metro. He was head of public works for the city, became chairman, general manager and chief engineer in charge of building the Metro. He remains chief of the Montreal Urban Community Transit Commission—the operating agency that took over from the old Montreal Transportation Commission.

MORE COMING: The future carshop at Beaugrand, where a line extension will go.

● **Success follows success.** So the Metro was good politics and good citizenship as well as good public works, and nothing succeeds like success. Preliminary proposals for expanding the existing system were announced in October 1970. The following February, the Montreal Urban Community (the regional government of city and suburbs) authorized spending $430 million to add 35 more miles and 50 stations to the system. Financing will be through general taxes.

Existing lines remain the baby of L'Allier's MUCTC. A separate agency of the regional government is in charge of planning and building the extensions —the Montreal Transit Bureau (Bureau de Transport Métropolitain)—and digging has already begun.

The overall program is divided into two phases, the first to carry through 1978, the second another three or four years beyond that. Cost estimates are $310 million for construction and cars in Phase 1; $120 million for construction and cars in Phase II.

● **Moving eastward.** The first big job in Phase I is a 4.9-mile eastward extension of line 1 from its present terminus at Frontenac station to a new one at

Neither snow nor sleet . . .

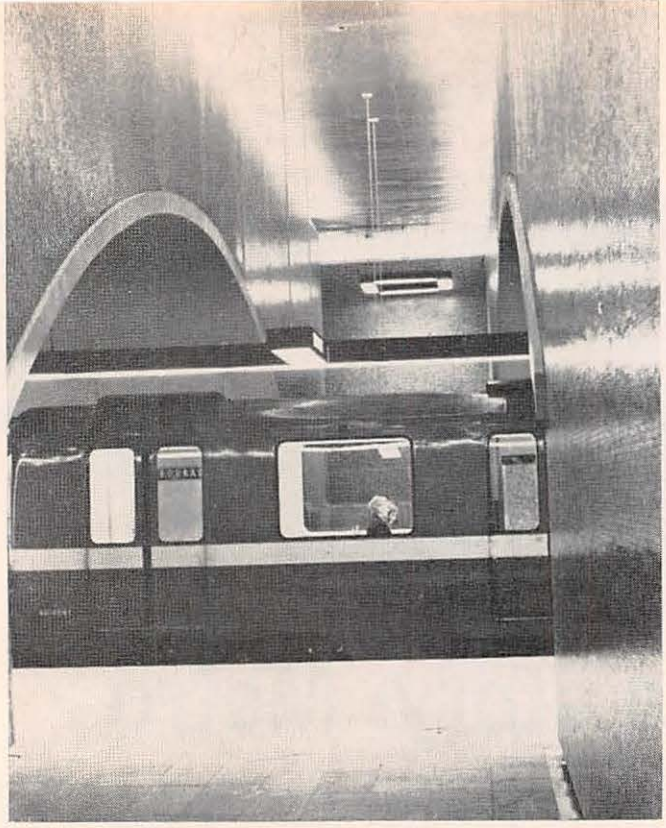
Snowstorms are an old story to the people of Montreal. But a storm that hit the Canadian metropolis last month was one for the books. Thirteen inches of snow fell on the city over a weekend. Then the temperature dropped to —10°, so none of it melted. High winds blew the snow into solid banks sometimes five feet high. Meanwhile, municipal snow-removal workers were out on strike, and then another two inches of snow fell on the city.

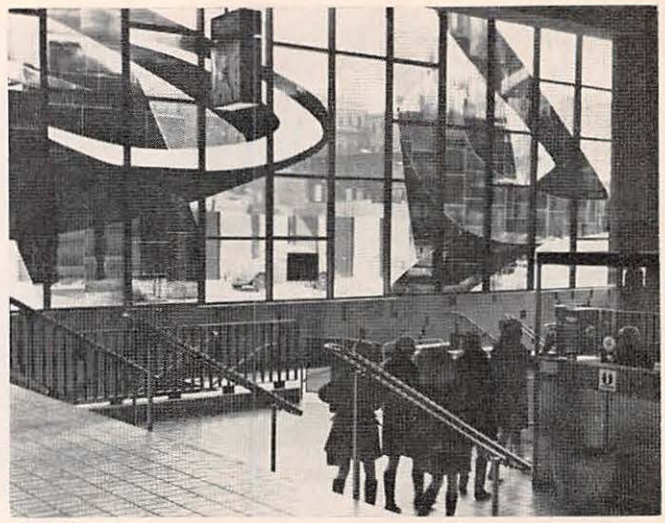
You can guess what happened to traffic Monday morning. Highways leading into the city were all but impassable, and strewn with abandoned cars. Bus service was cut by 60%, and taxis were almost impossible to find.

Just the same, downtown offices, shops and restaurants were open and functioning; the only concession to the weather was that employees were in many cases sent home one hour early.

The reason business was able to carry on is that the Metro was operating normally, and people were still able to get to work (rail commuter lines kept running, too). Eaton's, the big downtown department store located right next to a Metro stop, went ahead with an announced sale day which would otherwise have been cancelled.

"It's at times like these that people realize the value of the Metro the most," says Metro chief Lucien L'Allier.





STATION GRAPHICS: Mayor Daley of Chicago has his Picasso; Mayor Drapeau of Montreal has his Metro stations. Wow!

NEW CARS: The existing cars have automatic stop devices; the new ones will probably have choppers and ATC.

Beaugrand. The first contract was let last October for this to Speno Construction Co. It's for $3.4 million, to build a car shop at Beaugrand, and excavation work is in full swing (see photo). Another eight stations and all connecting tunnels and trackwork on this segment will be out for bids "very shortly," according to Gérard Gascon, director of the Montreal Transit Bureau and the boss of the entire expansion program.

Next comes a 4.4-mile seven-station southwestward extension of Line 1. Gascon says architects are still working on the plans, but it's well along, and construction bids can be expected fairly soon.

Other projects to come are a 5.9-mile northwestward extension of Line 2, a 5.5-mile northward extension connecting with either Line 1 or 2, a 3.0-mile northern extension of Line 2; a 4.7-mile transversal east-west line between two branches of Line 2, to be called Line 5; and three- and four-mile extensions respectively to Ville LaSalle and Lachine. The two latter are relegated to Phase II, and Gascon says plans are firming up right now for the Line 2 northwestward extension and for the new Line 5.

● **Going regional.** It should be noted that the new line segments will partly cut through the suburbs. This underlines the new regional nature of the system. Until two years ago, the Metro, which was financed and built by the City of Montreal, was wholly owned by it and lay entirely inside it (except for the station of Longueuil on the south shore of the St. Lawrence River, and paid for by that suburb).

Under the present setup, the system passes to regional ownership, is financed by the regional government (with some assistance from the Province of Quebec), and crosses suburban boundaries where population and geography dictate.

"We don't foresee any unusual construction problems," says Gascon. "The construction should be very straightforward, and much like the existing lines—about 70% tunnel and the rest cut-and-cover. I doubt if we will need any exotic equipment to do the job."

● **All underground.** The top soil in Montreal ranges from five to 80 ft. in depth, in a rippling effect. For this reason, Metro engineers prefer to go way down to tunnel through solid bedrock, then bring the tunnel up rather steeply at stations. All new extensions, just like the existing lines, are entirely underground.

The $430 million cost estimate may seem a bit low, in view of the size of the program. Gascon concedes that even with an inflation factor included, the figure could be on the low side. On the other hand, the existing lines were also built for rather less than would otherwise be expected.

And that brings up the subject of the transit cars. The rubber-tired Metro vehicles are able to take steeper grades than conventional steel-wheel vehicles normally do—6% or more—and that is an important plus in the kind of tunnel construction Montreal engineers favor.

Gascon says he's aware of the large body of professional opinion that is cool to the rubber-tire concept. But while he concedes that rubber tires may raise operating costs somewhat, the steeper grades they make possible help to offset this in lower construction costs. Another factor in lowering construction costs, he adds, is that the Metro cars are somewhat narrower than conventional transit cars, and therefore tunnel bores are narrower.

● **Construction bargain.** So all in all, and remembering how cheap it was to build the existing lines, the $430 million cost estimate, low as it sounds, is not likely to be far off target. In terms of present-day public works costs, it's quite a bargain.

As for the new car fleet, plans call for adding 279 cars in Phase I and 81 in Phase II. It's a foregone conclusion that they will be rubber-tired. The existing 369-car fleet (built by Canadian Vickers) is equipped with automatic stop devices. For the new fleet, Gascon says engineers are actively considering chopper controls and automatic train control.

Hitachi and the Canadian licensee of Jeumont-Schneider (of France) have agreed to equip enough cars for a complete nine-car train with chopper controls in a prototype program. By August of this year, the cars should be ready for running trials in regular revenue service. It's expected that car bids for the new fleet proper can go out by autumn.

Gascon's own Bureau is an agency of the regional government. L'Allier's MUCTC is a separate legal entity resonsible to the regional government. The third collaborator is the City of Montreal, and Gascon says all three work in close harmony. As the con-

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Railway Educational Bureau

struction program swells in size, Gascon expects his staff of 200 to expand to maybe 250.

In view of the U.S. Dept. of Transportation's new-found enthusiasm for express buses, Gascon was asked if he was interested in them.

● **Bus vs. train.** "They certainly have merit," was his response. "They could be useful in certain circumstances, perhaps service to an airport. But when you reach the point where traffic densities justify one bus closely following another, why not take the driver out of each vehicle and make it a train? The operating cost would be much lower.

"For ourselves," he goes on, "we are not considering subways outside the areas that generate some traffic density. But in the dense regions, we do not think buses will be enough. You should have trains."

Over at MUCTC, L'Allier says much the same thing: "We don't see any immediate need for such buses and we have no plans to introduce them."

L'Allier, of course, presides over one of the biggest success stories in transit in recent years. He was asked to describe the principal ingredients in that success, and said:

"People *like* the Metro, and that's why there was a strong demand to expand it. It runs at full capacity at the rush hours, but the peaks are not as sharp as in some other places, because they use it a great deal for shopping during the day. You have four large department stores located along the lines.

"They like the rubber-tired vehicles and the attractive design of the stations. Until the Metro came along, there was nothing like this design in North America.

● **Civic pride.** "People are definitely proud of the Metro," he goes on. "We've had very little vandalism, for example. There are police patrols. Also the judges are very tough on offenders. But there are not many people who *want* to vandalize.

"We have good coordination of the system. There are feeder buses bringing people to the Metro, and we reduced the bus lines running parallel to it. We already have parking at some outlying stations; as the system expands, there will be more.

"What this does is to bring the suburbs much closer to the city. We've already seen where connections to the Metro add values to real estate in the suburbs, as well as cutting travel time downtown by 50% or more."

L'Allier was asked how Montreal experience differs from U.S. transit experience. "We don't have so many legal jurisdictions all taking part in the planning process," he replied. "And we don't have road construction fostered to the same extent by the central government, nor so many companies and contractors with a direct interest in road construction."

● **HUF puff.** In that connection, it's interesting that in the U.S., the Highway Users Federation recently circulated reports that Montreal's Metro, for all its shiny new glamor, was losing passengers. Indignant Montreal officials retort that the Federation based its statement on declining traffic for the Commission in toto—bus and Metro. In fact, bus traffic declined sharply, while Metro traffic is up. Metro officials expect it to keep growing at around 3% a year.

It should also be noted that in Mayor Drapeau, Montreal has a driving force who overcame inertia and all obstacles to finance and build the Metro. Besides that and Expo, he also led in getting the city a major league baseball team, and in getting it picked as the site of the 1976 Olympics.

There's a lesson here for civic leaders given to much talk and not so much action. Drapeau's winning streak at the polls is worth pondering. ■

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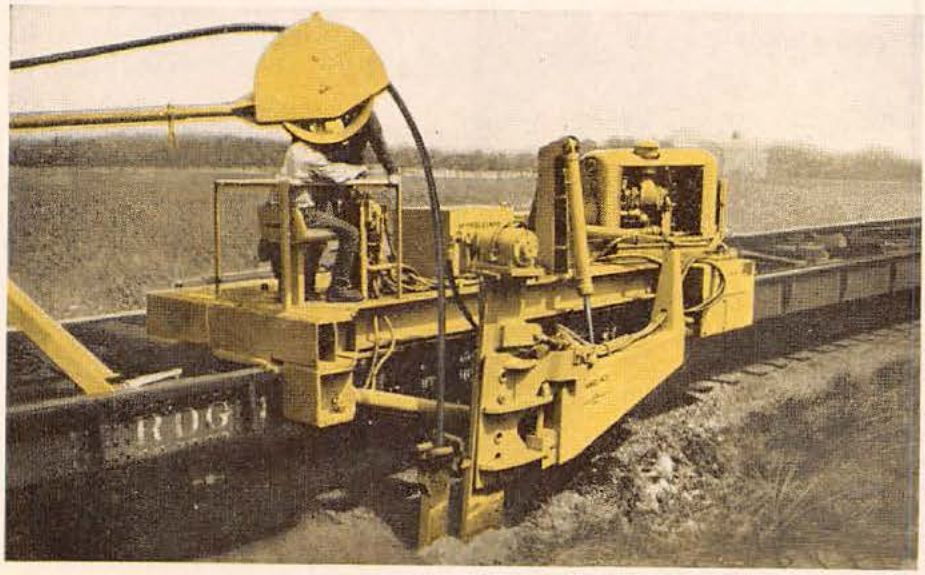

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Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Feb. 19 totaled 474,198 cars, according to the Association of American Railroads. This was an increase of 16,898 cars, or 3.7%, compared with the previous week, and a decrease of 12,793 cars, or 2.6%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Feb. 19 are estimated at 14.4 billion, an increase of 2.6% above the corresponding week of 1971.

REVENUE FREIGHT CARLOADINGS

Commodity	Feb. 19 week
Grain	22,332
Farm products	14,345
Metallic ores	15,158
Coal	87,390
Crushed stone, gravel & sand	19,655
Nonmetallic minerals	9,516
Grain mill products	18,663
Food and kindred products	24,360
Primary forest products	23,900
Lumber & wood products (except furniture)	17,236
Pulp, paper & allied products	23,406
Chemicals & allied products	27,250
Petroleum products	9,858
Stone, clay & glass products	17,439
Coke	7,058
Metals & products	22,882
Motor vehicles & equipment	26,554
Waste & scrap materials	15,001
Forwarder & shipper assn. traffic	5,944
All other carloads	65,670
LCL traffic	581
Total cars loaded	474,198

CUMULATIVE TOTAL,	1972	1971
7 weeks	3,224,528	3,402,965
Estimated revenue ton-miles (billions) 7 weeks	96.7	97.6

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Feb. 12 totaled 23,484 cars (1.6% above the corresponding week last year) and 39,187 trailers or containers (up 5.0% from 1971). Cumulative volume for the first 6 weeks of 1972 is 135,742 cars (up 0.2% from last year) and 225,507 trailers or containers (up 5.3% from 1971). In addition to freight, 2,601 cars carrying 4,118 trailers or containers of mail and express traffic were handled piggyback. Cumulative figures for the first 6 weeks of 1972 are 14,565 cars (down 29.2% from the 1971 total), and 22,833 trailers or containers (down 21.9% from 1971).

IN CANADA

7 days ending	Tons of Revenue Freight	Cumulative Totals
Feb. 7, 1972	3,508,980	17,778,511
Feb. 7, 1971	3,225,182	17,697,436

● *Burlington Northern.*—Ordered 300 100-ton open-top triple hopper cars from Bethlehem Steel at a cost of about $4.6 million for May-June delivery.

● *Cities Service Co.*—Is taking delivery of 166 13,500-gallon-capacity sulfuric acid tank cars ordered late last year from Union Tank Car Co. Delivery will be completed in April. The cars will be used for shipments from Cities Service's new acid plant and existing plants at Copperhill in southeastern Tennessee.

● *Colorado & Southern.*—Ordered 100 100-ton insulated box cars from Pacific Car & Foundry at a cost of about $3 million for May delivery. Cars are designed for Coors beer service.

● *Fruit Growers Express.*—Alexandria, Va., company shops are building 100 70-ton insulated box cars for first-quarter delivery.

● *Freight-car orders and deliveries.*—The following report was issued Feb. 29 by the AAR and the ARCI:

DELIVERED

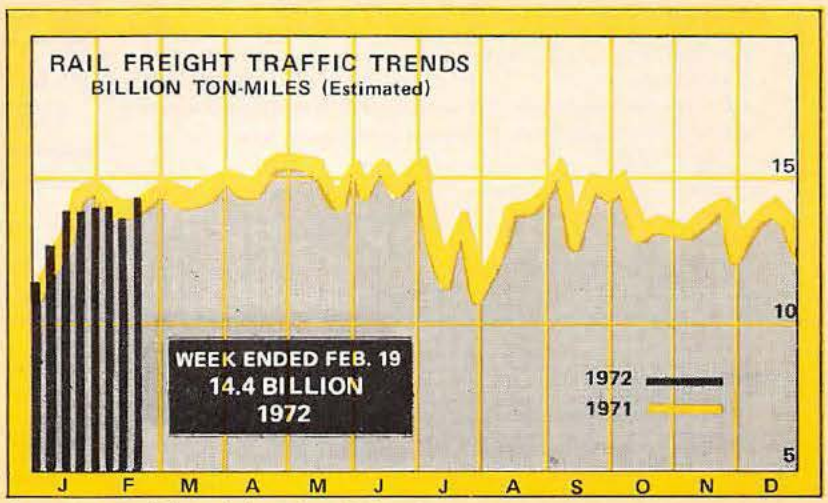
	Jan. 1972	Dec. 1971	Jan. 1971
Built new by car builders	3,965	4,551	3,183
Built new in R.R. shops	246	256	542
Built new—total	4,211	4,807	3,725
Rebuilt	328	398	655
TOTAL DELIVERED	**4,539**	**5,205**	**4,380**

ORDERED

To be built new by car builders	2,320	3,633	2,932
To be built new in R.R. shops	1,400	300	220
To be built new—total	3,780	3,933	3,152
Te be rebuilt	375	396	282
TOTAL ORDERED	**4,155**	**4,329**	**3,434**

ON ORDER AND UNDELIVERED

	Feb. 1, 1972	Jan. 1972	Feb. 1, 1971
To be built new by car builders	17,183	18,753	21,993
To be built new in R.R. shops	4,682	3,468	4,910
To be built new—-total	21,865	22,221	26,903
To be rebuilt	1,833	1,786	2,011
TOTAL ON ORDER	**23,698**	**24,007**	**28,914**



Source: Association of American Railroads

People in the News

H. B. Parker
Frisco

George E. Bailey
Frisco

Prime F. Osborn
L&N

William H. Kendall
SCL Ind.

BELT RAILWAY OF CHICAGO.—George D. Moriarty elected secretary and treasurer, with headquarters in Chicago.

BESSEMER & LAKE ERIE.—Myron W. Lewis, director industrial engineering, Pittsburgh, Pa., retired Jan. 31, after 37 years of service.

CANADIAN NATIONAL. — R. H. Newcombe, passenger sales manager, London, Ont., appointed manager of passenger sales and services, Great Lakes Region, Toronto.

G. W. Lange, assistant area manager, Southwestern Ontario area, London, appointed assistant area manager, special duties, Great Lakes Region, Toronto.

J. W. Deck has been appointed superintendent investigation, Great Lakes Region, Toronto. He was formerly superintendent investigation, **Grand Trunk,** Detroit.

FRISCO.—H. B. Parker, vice president and controller, elected vice president-finance and treasurer, Springfield, Mo., and **George E. Bailey,** general solicitor, elected vice president and secretary, St. Louis, two new positions created by the resignation of **G. M. Rayburn,** vice president, secretary and treasurer. **C. C. Roberts,** assistant controller, appointed controller, Springfield.

R. J. Allen, sales representative, Kansas City, Mo., named district sales manager, Shreveport, La., succeeding **G. D. Neff,** who retired Feb. 29.

MERCHANTS DESPATCH TRANSPORTATION CORP.—Thomas J. Zuzich named vice president-finance and assistant treasurer, Chicago.

Donald E. Monger appointed vice president-mechanical engineering and equipment.

MILWAUKEE.—Donald J. Miller, assistant manager of rail-highway sales, Chicago, named sales development manager there.

Larry E. McDowell, employment and training officer, Personnel Department, appointed manager of employee appraisal. **John A. Moores,** market analyst, appointed personnel officer.

SEABOARD COAST LINE-LOUISVILLE & NASHVILLE.—Prime F. Osborn, president of SCL, elected president and chief executive officer, L&N, at Louisville, Ky., succeeding **William H. Kendall,** elected vice-chairman of the board, **Seaboard Coast Line Industries** (RA, Feb. 28, p. 8).**W. Thomas Rice,** chairman and chief executive officer, SCL, will continue in those posts and will assume the duties of the presidency of the road.

SOUTHERN.—Robert H. Smith, treasurer, Washington, D.C., will retire April 1, after more than 51 years of service. **George M. Williams,** assistant vice president-finance, assumed the duties of treasurer, effective March 1, with the title of assistant vice president and treasurer.

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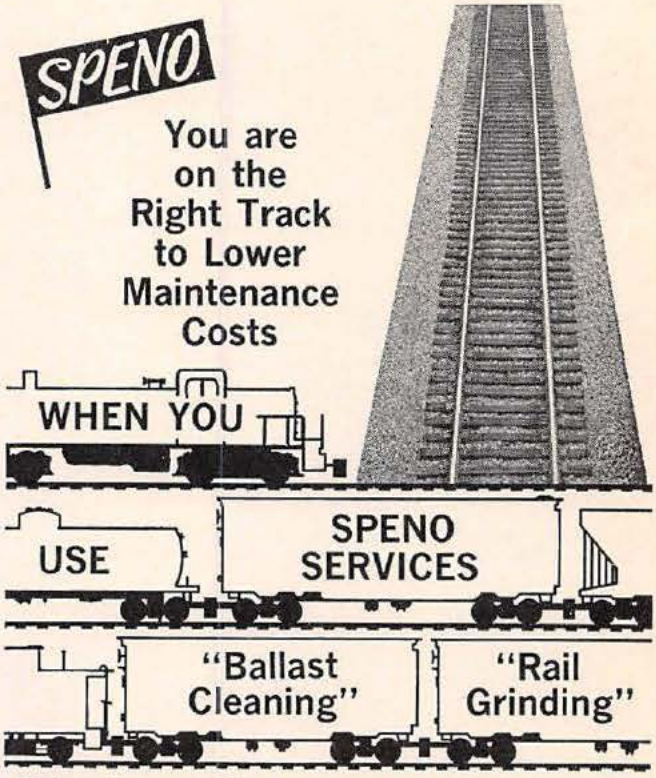

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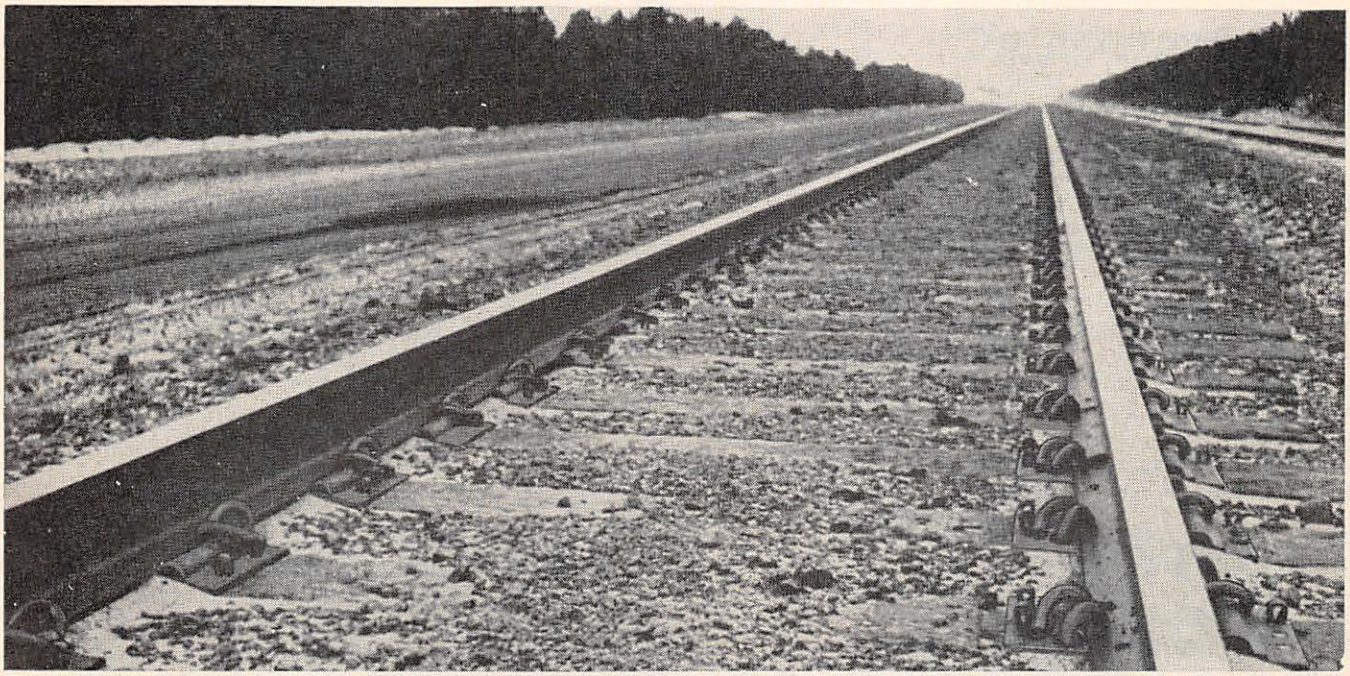

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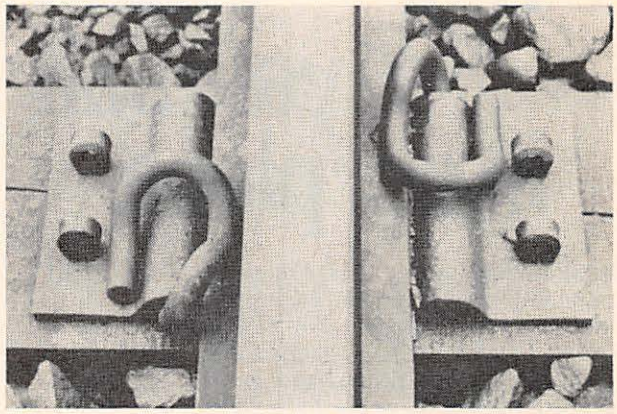

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Mellor W. Stevenson, former vice president, **Midland-Ross Corp.,** has been named president and chief executive officer of the newly formed **Nationwide Transportation Products, Inc.,** Cleveland, Ohio. **M. J. Bernet,** president, **Terminal Supply, Inc.,** has been named vice president of the new company, which will market transportation products manufactured by **Republic Steel Corp.** for railroads and railroad car builders.

Alfred W. Frank, general sales manager, **Edison Battery Division, McGraw-Edison Co.,** Bloomfield, N.J., has been appointed vice president-sales.

Stephen T. Marcin, salesman, railroad products sales division, **Bethlehem Steel Corp.,** Bethlehem, Pa., has been appointed assistant manager of railroad products sales.

Joseph B. Means, director-computer programming, **Southern,** Atlanta, Ga., has been appointed manager of systems engineering, **General Railway Signal Co.,** Rochester, N.Y.

TRANSIT

Stanley F. Thayer, product manager-mass transit marketing, **Westinghouse Air Brake Division** of **WABCO,** has been named manager of mass transit field service. He will report to the manager of mass transit engineering. His office will be in New York at the division's sales office. **Robert H. Archibald,** sales representative, Philadelphia, has been named manager-mass transit sales, reporting to the vice president-sales. Mr. Archibald will also manage industrial and disc brake activities and have headquarters in Wilmerding, Pa.

Leo J. Cusick has been named acting resident manager, **Kansas City Area Transportation Authority.** Other appointments: **Seymour Kashin,** acting assistant resident manager; **Larry C. Huffman,** director of maintenance; and **Sam Smith,** director of operations.

Mr. Cusick was formerly general manager, Massachusetts Bay Transportation Authority.

DIVIDENDS DECLARED

CANADA SOUTHERN.—$1.50, semi-annual, paid Feb. 1 to holders of record Jan. 20.

CHESAPEAKE & OHIO.—75¢, quarterly, payable March 30 to holders of record March 3.

COLORADO & SOUTHERN.—4% 1st Preferred, $4, paid Dec. 31 to holders of record Dec. 20.

GULF, MOBILE & OHIO.—70¢, quarterly, payable March 20 to holders of record March 1; $5 Preferred, $1.25, quarterly, payable Sept. 18 to holders of record Aug. 23.

MISSOURI PACIFIC.—Class A, $1.25, quarterly, paid Dec. 23 to holders of record Dec. 13.

NORFOLK & WESTERN.—$1.25, quarterly, payable March 10 to holders of record Feb. 10.

PITTSBURGH & LAKE ERIE.—$1.50, quarterly, paid Jan. 14 to holders of record Dec. 30.

ST. LOUIS-SAN FRANCISCO.—50¢, quarterly, payable March 15 to holders of record March 1.

SEABOARD COAST LINE.—55¢, quarterly, payable March 16 to holders of record March 1.

SOO LINE.—$1.87, paid Jan. 25 to holders of record Jan. 11; recommendation of a 2-for-1 stock split to be submitted for approval at Annual Meeting April 12.

SOUTHERN.—80¢, increased quarterly, payable March 15 to holders of record Feb. 15; 2-for-1 stock split subject to shareholders' approval on May 23; 5% Preferred, 25¢ quarterly, payable March 15, June 15 and Sept. 15 to holders of record Feb. 15, May 15 and Aug. 15, respectively.

WEST JERSEY & SEASHORE.—Special Gtd., $1.50; common, $1.50, both paid Feb. 17 to holders of record Feb. 10.

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Viewpoint

Let's talk sense about the highway lobby

Life never seems right if the highway lobby isn't stirring up anti-transit propaganda. For a while, it seemed as though we were in for an era of good feeling. Henry Ford II decided mass transit wasn't so bad after all. The oil companies were supporting mass transit in public bond issues. But don't be fooled. A new booklet has been going around to Congressmen and civic officials. It is called "Let's Talk Sense About Transit," and it is put out by the Washington-based Highway Users Federation for Safety and Mobility.

The booklet is some kind of classic for its deft combination of misstatement, innuendo and cliche. A sample of misstatement: In the discussion of Montreal's new Metro, it says, "But the newness wore off quickly, with the result that transit in Montreal now attracts far fewer passengers than it did before Metro began operation."

The truth is that total transit ridership in Montreal—bus and subway—is off. The Metro alone increased ridership in each of the past three years.

And here is a sample of innuendo. Referring to the Delaware River Port Authority's Lindenwold High Speed Line, it states: "Actual first year revenues were $1,360,000 below estimates—an $860,000 loss . . . The Lindenwold experience is not an isolated instance. Typically rail transit fare revenues do not meet operating expenses. Someone else pays the bill."

First, it does not behoove the Highway Users to talk of wrong estimates of $1.3 million. The Interstate Highway System was supposed to cost $36 billion; now it is going to cost $70 billion—a slightly different order of magnitude in estimating wrongly.

Second, where any public transportation mode is involved, someone else helps pay the bill. Traffic police are paid by public bodies. The health insurance industry pays the cost of emphysema from air pollution from automobile exhausts. Every suburb pays the extra cost of long utility lines for low-level land use brought about by the automobile.

Third, PATCO's Lindenwold operating deficits in the past two years were $147,000 and $6,700 respectively. Contrary to what the learned Highway Users say, DRPA officials insist that the PATCO line most definitely eased congestion on the Benjamin Franklin bridge into Philadelphia. By any measure, PATCO, even losing some money, is cheap at the price.

WHO PAYS THE HIGHWAY BILL?

The rest of the booklet is on the same intellectual level. But if the Highway Users are so exercised by "someone else pays the bill," let's ask them this: Who pays the bill for cloverleafs, flyovers, turnovers and parking lots that chew up enormous amounts of real estate? Who pays the bill for all the land taken off the tax rolls? Who pays the bill for slicing up communities? Who pays the bill for smog and pollution? Who pays the bill for paving over downtown and turning it into a glorified traffic interchange? And who pays the bill for a decimated landscape?

The highway people surely aren't stupid—but they do seem desperate. They have no new arguments, only rehashes like this one.

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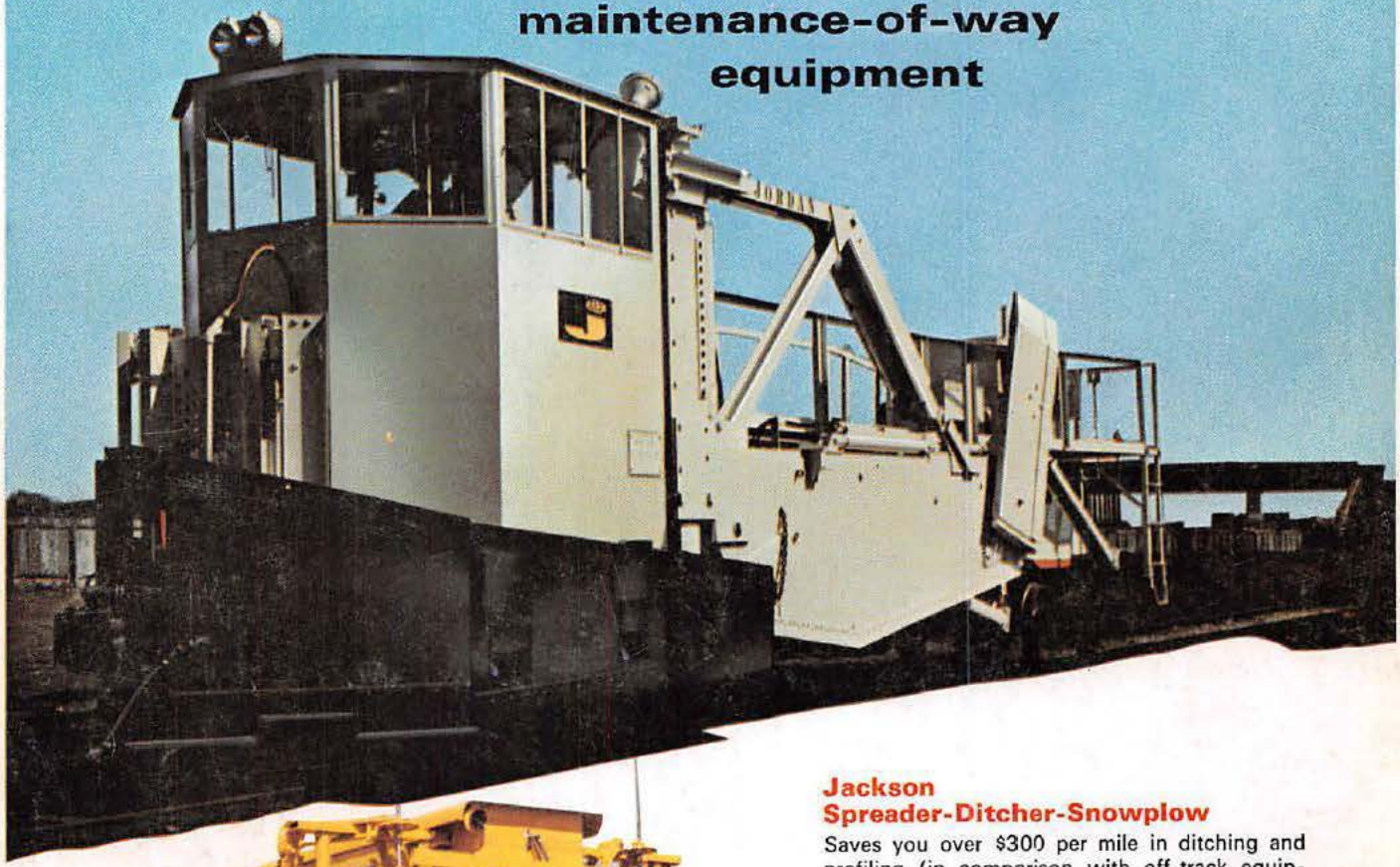

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